

NetworkWorld

THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING

3COM TACTICS

With Cabletron out of the running, 3Com makes a series of Chipcom product maneuvers. **Page 6**



Service suffers as RBOCs retool for deregulation

By Tim Greene

Among a network manager's worst nightmares are the phone line that doesn't get fixed, the service that doesn't get installed on time and the complaint line that doesn't get answered.

With deregulation and the onset of local-loop competition, users could find these nightmares increasingly real. Carriers are cutting staffs and reengineering service operations to lower costs and maximize profits. And, in some areas, customers are already paying the price.

Net managers who have learned the lessons of the new telecommunications marketplace the hard way have a bit of advice to offer: Get involved early and in force if you want to stop service problems from getting out of hand.

The lessons have been very clear in the 14-state US WEST, Inc. service area. The carrier is sporting a bit of a black eye as one state regulatory commission after another has found fault with its service over the past year.

FIGHT FOR BETTER PHONE SERVICE

Users that have successfully squeezed better service from their local carriers recommend you:

- ▶ Go up the ladder if the people assigned to fix your problems don't deliver.
- ▶ Join user groups to gain more clout — there's strength in numbers.
- ▶ Call your state's public utility commission. Regulations often give them the power to fine telcos for bad service.
- ▶ Extract a service-level commitment from the carrier, then hold them to it.
- ▶ Demand regular meetings with telco executives to discuss how they're doing.



Last month, Arizona set a standard of service US WEST must meet or face fines of up to \$5,000 per incident. And two weeks ago, Colorado dumped \$424,000 in fines on the carrier for service-quality violations during the second quarter.

The problem: US WEST mis-

See Deregulation, page 58

NT scores big network win

Wiping the IT slate clean, Union Carbide rebuilds its infrastructure, applications on a Microsoft foundation.

By Peggy Watt

Union Carbide Corp. is throwing out a crazy quilt of systems and software and putting its faith in Microsoft Corp.'s Windows NT, installing 100 NT servers that will support nearly 10,000 nodes in an internetwork spanning North America.

Gone will be the Novell, Inc. NetWare, Banyan Systems, Inc. VINES, Microsoft LAN Manager and Unix systems that have made up Union Carbide's information processing architecture for the past dozen years.

The desktops, set to switch to Windows 95, were another mixed bag, with about 55% Macintoshes and the rest a combination of Windows 3.1 and DOS machines. A few systems even

run DOS 1.1, said John Hetrick, project manager and an Atlanta-based strategic client projects director for Vanstar, Inc., a

Pleasanton, Calif., systems integrator. Vanstar landed the deal as part of its enterprise consulting campaign with Microsoft. The contract, one of Microsoft's biggest network wins to date, is expected to be announced this week.

"They had a little of just about

See NT scores, page 57

NT partnership

Microsoft invests in Digital as part of deal expected to boost NT's fortunes. **Page 6**

PC banking poised for resurrection

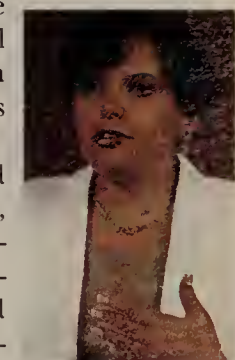
By Ellen Messmer

With great fanfare, banks across the country are readying new on-line services that will let customers handle their personal finances from home via PCs and modems.

But behind the scenes, those developing the networks and software driving these new home banking services are wondering, if we build them, will they come?

Earlier efforts to get the public to buy into PC-based home banking have met with little success since Citibank, N.A. pioneered the concept in the late '80s with its proprietary Direct Access service.

But the home banking pitch — See Bank, page 12



Citibank's Christina Ford says banks are pursuing multiple technology strategies to win over customers to home banking.

AT&T won't link to LEC frame relay nets

By Joanie Wexler

Bridgewater, N.J.

Taking a position that flies in the face of interoperability, AT&T will not embrace a standard that lets customers marry services from local and long-distance carriers to build end-to-end frame relay nets.

AT&T will not support the Network-to-Network Interface (NNI) specifications developed by the Frame Relay Forum, which would tie its InterSpan frame relay service to budding

frame relay offerings from local carriers. Instead, AT&T will keep pushing users to buy dedicated or dial-up access to its frame relay network.

AT&T executives said the company shot down NNI because customers would lose key

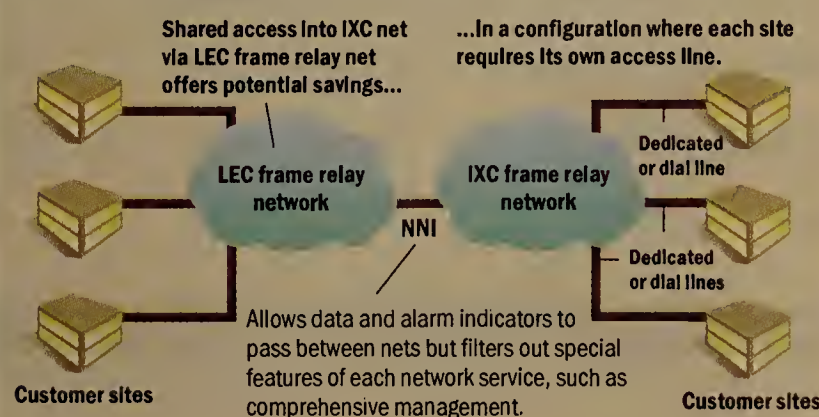
InterSpan features, as well as management and disaster recovery capabilities, if AT&T's frame relay net is hooked into other nets with different attributes.

The decision, which could raise the cost of frame relay for

See AT&T, page 58

THE COLD SHOULDER

AT&T says it is shunning NNI connections because they would degrade its frame relay service, although NNI would offer cost benefits to certain users.



Net pros are all the rave in Hollywood

By John Cox

Virtual Reality, Calif.

Download this movie concept into your cortex.

High-tech company network manager, played by Sylvester Stallone, discovers a plot by Japanese cyber-yakuzas to booby-trap the networks of key U.S. corporations with software logic bombs and blackmail the nation for billions of yen. Armed with a dual-Pentium color laptop, partnered with a beautiful and brilliant programmer who has a haunted past — played by Sharon Stone — and racing against time, Stallone creates a computer virus that destroys the bombs, making America safe for networking.

This is a virtual scenario, which means we made it up. But it isn't that far off from the kinds of movies Hollywood is making and planning now that the Internet and networking have entered America's mainstream consciousness. For better or worse, networkers — you, that is — are in the cultural spotlight as both heroes and villains.

Consider *The Net*, re-

See Net pros, page 57



EtherLink III Parallel Tasking PCI

Introducing the hottest adapter to



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You might say we're on a roll. Presenting 3Com's EtherLink® III PCI adapter, the newest addition to our long line of powerful adapters for the industry's hottest new bus type. And the best performing Ethernet PCI adapter available. All at a price that makes it an extraordinary value.

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family name. For more information, and to get a \$59* EtherLink III PCI evaluation card, call **1-800-NET-3COM**.





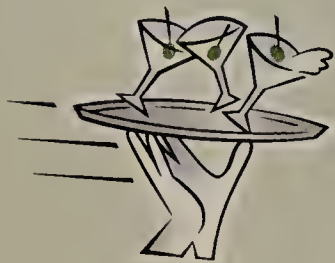
Dave learns Solaris™ x86 was named
Best New Network Operating System by LAN Times.*



Dave recommends Solaris x86 to his boss.
Users stop whining about network limits.
Dave gets a fat raise.



He moves to Miami to run the
"International Division."




He attends a swank party
where he's offered a job in Hong Kong.



A year later the company goes public.
Dave becomes a billionaire.
(Your results may vary.)



Solaris™ x86. The solution for those
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and need something more than
Microsoft® Windows NT.™ For more
information call 1-800-SUNSOFT,
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 SunSoft

AT&T puts Notes to work

■ AT&T and Lotus Development Corp. today will announce that they are moving from beta testing to a limited commercial offering of AT&T Network Notes, which puts Notes software on AT&T's public network. Rather than opening up to all comers, the companies are announcing nine commercial customers, some of which were beta testers. The service was initially scheduled for availability earlier this year.

Symptoms of wireless malaise

■ Motorola, Inc.'s Wireless Data Group has been restructured and has laid off an unspecified number of personnel, all in an attempt to shift its focus from building products to getting customers interested in the sluggish mobile computing market. Under the plan, Motorola put its modem and personal communicator groups under one umbrella.

Two Grand new switches

■ Grand Junction Networks, Inc. of Fremont, Calif., will announce two next-generation workgroup switches that allow users to migrate to switched Ethernet at their own pace. FastSwitch 2100 has 25 switched 10M bit/sec Ethernet ports and two fixed 100Base-TX ports for high-speed connections. Unlike Grand Junction's previous switches, the new device supports multiple media access control addresses on each port, with a total of 1,024 MAC addresses.

FastSwitch 2800 also has 25 switched 10M bit/sec ports and two high-speed expansion slots for FastMate 100Base-T, Fiber Distributed Data Interface and, in the future, Asynchronous Transfer Mode modules. Both switches are available now, and pricing starts at \$6,295.

CA getting close to Sun

■ Computer Associates International, Inc. (CA) and Sun Microsystems, Inc. this week are expected to announce tight integration of their systems and network management products, according to analysts. The companies also will jointly market each other's management products, the analysts added.

Initially, CA and Sun will bind CA-Unicenter with Solstice SunNet Manager, but over time, the companies plan to integrate CA-Unicenter with Sun's Solstice Enterprise Manager platform. CA declined comment. Sun did not return phone calls by press time.

Exchanging one beta for another

■ Microsoft Corp. of Redmond, Wash., last week finally released Beta 2 of Microsoft Exchange Server, the Windows NT-based electronic mail application that completes the client/server BackOffice suite. The release is feature-complete and this fall will be tested by some 15,000 organizations. Microsoft still pledges to ship the oft-delayed product this year.

Wall Street mischief

■ Trading of Sybase, Inc. stock last week halted briefly after a crank caller impersonating the company's chief financial officer told NASDAQ to stop trades because the company was to be acquired for about \$50 a share.

News

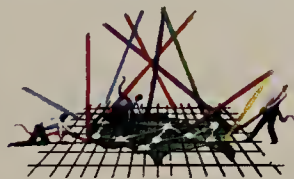
- 6 Sprint delivers ISDN dial-up access** to its frame relay net, while AT&T offers analog dial access, and MCI prepares broad new options.
- 8 Deregulation is one step closer**, as what could be a Clinton veto-proof edition of the telecom reform bill sails through the House.
- 57 IBM to offer graphical tool** for managing both IBM and non-IBM client/server databases.
- 58 CompuServe jumps** on electronic commerce train, pushes Wallet for transactions.

WANs & Internetworking

- 15 AT&T sharpens videoconferencing picture**, details WorldWorx pricing.
- 15 Sprint charts out PCS course**, while AT&T sticks to its cellular guns.
- 17 ISDN local gaps getting filled** by Sprint/United, other local carriers.

LAN World

- 11 Shareware providers flex creative muscle** with cutting-edge LAN products.
- 11 Apple to unveil MacX Unix server** and Open Transport update at MacWorld Expo.
- 21 Novell to launch beta version** of new NetWare client designed to ease mobile lifestyles.



Buyer's Guide

Peace may be at hand in the net management platform wars, thanks to an emerging class of application.

Page 37.

Client/Server Applications

- 29 Recognition's new version** of FloWare will support a large number of users by splitting applications among multiple servers.
- 29 By bringing MailHub in-house**, Unilever cuts the time and hassle it takes to update its electronic directory.
- 29 Novell's beta release of OpenDoc** will include ComponentGlue, which will try to bridge the gap between OpenDoc and OLE 2.

Electronic Commerce

- 31 Antiporn legislation** may clean up cyberspace, but it could hinder electronic commerce.



Rep. Constance Morella (R-Md.) says Congress needs to recognize industry efforts to control cyberporn before passing legislation. Page 31.

MANAGEMENT STRATEGIES



Hackers can deny you access to Internet service by clogging the road to your site. Page 46.

Technology Update

- 33 IsoEthernet provides** efficient voice, video and data delivery over 10Base-T.

Opinions

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- 15L Melinda Le Baron and Skip MacAskill** pondered Cabletron's attempt to block 3Com deal.
- 30 Mike Rothman** advises users to enjoy the slow summer but to keep an eye out on E-mail issues.
- 31 Mark Gibbs** looks at what's wrong with Web browsers.
- 34 Editorial:** Second coming of electronic banking brings lessons learned from first time around.
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- 35 Alan Pearce** cautions users to play the field of global alliances.
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- 59 Abend:** A compilation of on-line oddities.



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NetworkWorld's Mission: To provide news and analysis that help network IS professionals deliver the network computing infrastructure and distributed applications required to meet evolving business needs.

Sprint, AT&T differ on dial access

AT&T goes analog and Sprint takes digital in contrasting frame relay dial-up strategies.

By David Rohde

Sprint Corp. last week introduced ISDN dial-up access to its frame relay network, highlighting a dramatic contrast among the major carriers in their frame relay dial-up strategies.

Sprint's new offering gives users the option of using either ISDN Basic Rate Interface or Primary Rate Interface access, adding to the carrier's existing dial backup through local exchange carriers' switched digital 56K bit/sec circuits.

While Sprint has hitched its dial-up wagon to digital telephony without an analog option, AT&T offers the opposite — analog dial access over X.25 packet switching (see graphic).

MCI Communications Corp. currently offers dial access only

through ISDN BRI and switched 56K bit/sec but is planning a raft of new analog and digital options by the end of the third quarter.

Dial access into a frame relay network is a money-saving solution for branch offices and mobile workers, or any site with moderate connectivity needs because it frees the customer from having to buy pricey dedicated access lines.

By becoming the first carrier with PRI access, Sprint lets customers use the same wideband facility for both frame relay access and other wide-area networking needs, said Brad Hokamp, Sprint's frame relay product manager.

For example, users that need T-1 frame relay access can use

PRI instead and periodically switch some of the 24 channels in the PRI link to voice communications.

PRI access is an especially useful option for time-of-day-sensitive traffic, such as a network with heavy voice traffic during the day and heavy data traffic at night.

By contrast, a leased T-1 used for frame relay access is ordinarily not available for any other purpose unless it is custom designed for multiple uses in advance, analysts said.

But the analog option offers users the ability to provide access to mobile workers as well as fixed sites. "In the short run, AT&T has the definite advantage because it has analog connection capability," said Christine Heckart, a senior consultant at TeleChoice, Inc., a Verona, N.J., consultancy.

AT&T's Information Access Service allows dial-up capability from 300 through 14.4K bit/sec nationwide, converting data from a remote PC into the X.25 packet protocol.

According to Hokamp, the

Getting into the network

Current and planned dial-up access options for frame relay networks:

	Access options			
	Analog through X.25	Switched 56K bit/sec circuits	ISDN BRI	ISDN PRI
AT&T	✓	Not planned	End of 4Q	End of 4Q
MCI	End of 3Q	✓	✓	End of 3Q
Sprint	Next year	✓	✓	✓

AT&T service is flawed because X.25 incurs greater overhead, potentially degrading performance — particularly for IP traffic.

But Heckart noted that AT&T strips off the X.25 headers once data reaches the router in the nearest AT&T point of presence, sending it the rest of the way in the spare frame relay format.

And Bill Callahan, MCI senior manager of broadband data marketing, said most new dial access frame relay applications are coming off all-X.25 transport, meaning that users with mixed X.25 and frame relay transport would not see any performance degradation. Callahan said that along with X.25 dial access to be announced later this quarter, MCI will support dial-up telnet sessions and PPP.

Steven Taylor, president of Distributed Networking Associates, a Greensboro, N.C., con-

sultancy, cautioned users not to assume that dial-up access is always cheaper than dedicated access. For example, in some places, an ISDN BRI may be more expensive than simply installing a 56K bit/sec dedicated line to the carrier's nearest frame relay switch, he said.

Even analog dial access to a frame relay network may be more trouble than it's worth if all the user needs to do is access a specific database or file server through a modem pool, Taylor said.

But Heckart said a strategy of requiring users to dial directly into file servers or database hosts would tax network administrators because it would require multiple modem pools to accommodate everyone's needs. By contrast, she said, frame relay dial access creates a single face into the enterprise network for everyone. ■

Alliances

Microsoft, Digital to integrate Windows NT and OpenVMS

By Peggy Watt

San Francisco

Microsoft Corp. last week allied with a veteran of the enterprise, Digital Equipment Corp., to help escort its Windows NT product family into the corporate network market Microsoft craves.

Under the alliance, Microsoft will invest between \$50 million and \$100 million in Digital's Multivendor Customer Services and Systems Integration groups. The funds will go primarily to hire and train some 1,500 Microsoft-certified support professionals, who will install and help users maintain Windows NT Server-based nets anchored mainly by Digital's Alpha servers.

The companies will work together to get Digital and Microsoft products to interoperate, said corporate Chairmen Bill Gates of Microsoft and Robert Palmer of Digital.

Digital and Microsoft developers working on-site at Microsoft's Redmond, Wash., headquarters will integrate the unreleased Microsoft Exchange Server mail technology with Digital's All-In-I and MailWorks products. Digital's mail backbones will support Microsoft

Exchange Server, and Exchange clients will be able to access other mail environments.

Also, Microsoft will include Digital's clustering technology in future Windows NT products to help users with high-end application server needs.

Microsoft will not move Windows NT to Digital's OpenVMS operating system, which also runs on Alpha servers, nor will Windows NT and OpenVMS mix in clusters. But Digital will support Microsoft's Windows Open Systems Architecture APIs in OpenVMS. As a result, application vendors will be able to more easily write to both operating environments, said Robert Bismuth, Digital's director of corporate standards.

Microsoft also pledged to port Microsoft Office and other products to Digital's Alpha-based systems.

The funding is not an equity investment, and Gates said Microsoft expects to recoup the money in new business and access to Digital personnel.

While Microsoft has similar marketing and technology alliances with other enterprise systems vendors — notably Hewlett-Packard Co. and AT&T

Global Information Solutions — Gates noted that this agreement "goes a magnitude beyond what we've done before with other people."

"Multivendor software connectivity is very, very important," Gates said. "Even a company that, looking forward, expects to use Windows NT solutions wants to get continuing value from the equipment they have today."

Palmer emphasized the user benefit of cooperation between the vendors. "Seamless integration between multivendor products is only beneficial to customers," he said.

Part of Microsoft's investment will go into Digital's Migration Services Group, which is one of five companies that is sharing outsourcing support for Windows 95 upon its launch this month.

Likewise, the Digital Unix development group will work to promote interoperability between Unix and Windows NT, largely through TCP/IP, said Mark Silverberg, Digital's Unix product marketing manager. He noted that Digital's Unix-based ManageWorks can administer both Unix and Windows NT systems.

Staff Writer Jodi Cohen contributed to this story.



Digital's Palmer says seamless integration between multivendor products is only beneficial to customers.

3Com, Chipcom outline integration strategy as Cabletron drops its bid

Oncore and Online will top new 3Com product bill.

By Jim Duffy

Cabletron Systems, Inc. late last week scrapped its attempt to acquire Chipcom Corp. and will instead try to win over Chipcom and 3Com Corp. customers while those two companies hash out a consolidation plan.

Meanwhile, 3Com and Chipcom last week laid out a product integration strategy that results in two Chipcom products becoming "flagship" offerings for 3Com, casting the future of 3Com's LinkBuilder hub line into doubt.

Cabletron purchased about \$15 million in Chipcom shares and filed with the Federal Trade Commission to buy more in an attempt to block the \$775 million 3Com/Chipcom deal or pursue a hostile takeover (NW, July 31, page 1). In response, Chipcom last week adopted a poison pill plan to thwart a hostile or unsolicited bid.

But after evaluating its position, Cabletron opted to compete against a combined 3Com/Chipcom entity that has a "weakened competitive product position resulting from disjointed

focus on the high-end marketplace," the company said in a statement.

"We've looked at the different angles, and we just don't see a threat," said Robert Levine, Cabletron president and chief executive officer. "We determined that we're better off trying to go after their customer

What stays, what goes

- ▶ Oncore and Online stay, become flagship 3Com offerings.
- ▶ Galactica will go, and Onsemble and Ondemand brand names will be retired.
- ▶ MSH users will be migrated to Online and Oncore platforms.

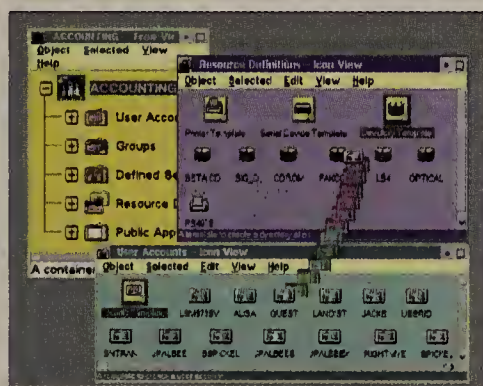
base because they're extremely vulnerable."

Cabletron now plans to launch a trade-up program in an effort to breed uncertainty among 3Com and Chipcom customers, and lure them to the Cabletron product line.

It will also liquidate its holdings in Chipcom "at a substantial loss," Cabletron said. See 3Com, Chipcom page 12



Will your network grow into a majestic oak, or raging crabgrass?



"...LAN Server 4.0 sports a modern, graphical interface that meets the expectations of the Windows™ generation of users."
— PC Magazine
May 30, 1995

"Departmental NOS of the Year—LAN Server 4.0 Entry."
— LAN Magazine
April 1995



Award-winning LAN Server 4.0

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House OKs telecom overhaul in landslide

Law could lift carrier regulations, hike prices.

By David Rohde

Washington, D.C.

Thumbing its nose at the White House, the U.S. House of Representatives late Friday passed its version of a sweeping telecommunications reform bill with more than enough votes to override a threatened veto of the measure by President Bill Clinton.

If ultimately adopted as law, the bill would be a decidedly mixed blessing for users. It promises greater competition in carrier services by allowing local and long-distance carriers into each other's businesses, and letting cable TV companies into the act, as well.

But it would also modify or remove certain long-standing regulations on regional Bell operating companies and would mean less stringent require-

ments for local competition than the Senate-approved version of the reform bill. Long-distance carriers and user groups such as the International Communications Association (ICA) said the House bill could lead to local exchange price hikes before true local competition arises.

Before the final debate, the ICA estimated that overall local exchange rates could go up by as much as \$18 billion in the first four years after the legislation takes effect.

ICA and the long-distance carriers also bitterly complained last week that the bill allows RBOCs into the long-distance business even if no facilities-based carrier — one owning its own switches and network infrastructure — appears in the RBOCs' backyard. For their part, the RBOCs countered that the

long-distance market needs additional competition as badly as the local market.

The bill passed on a vote of 305 to 117, following 10 hours of debate. The House and Senate bills must now be reconciled in conference committee.

AT&T, which wants stronger controls over when the RBOCs are allowed to compete in long distance, promised to try to sway the outcome of that conference.

"This unbalanced legislation isn't law yet," AT&T said in a statement released after the vote.

Sprint Corp. officials noted that about 150 representatives voted to give the Department of Justice a greater role in determining the exact date when individual RBOCs could enter the

long-distance business. RBOCs oppose such a move because it would probably slow down their entry into long distance.

The House was scheduled to adjourn shortly after the vote, so the House-Senate conference will not occur until after Labor Day.

Supporters of the bill conceded that there was still a long road ahead. "This has been a long debate, with more to follow, but Congress deserves praise," said Richard Notebaert, Ameritech Corp.'s chief executive officer, in a statement after the vote.

The outcome of the House-Senate conference will also test the political strength of President Clinton, who was said to be upset less by RBOC provisions than by the bill's loosening of

cable TV rate regulation and other media-related matters.

Since both the House and Senate passed their respective bills by more than a two-thirds margin, there are more than enough votes to override a veto if sentiment toward the bill remains the same.

The long-distance carriers last week appeared to botch their furious lobbying campaign against the bill, with House members reporting they had received telegrams opposing the bill from voters who never authorized the missives.

And based on last week's record, observers said AT&T and its allies will have to clean up its lobbying act to regain some credibility in the next round of discussions. ■

Systems management

Oracle offers mgmt. tools for client/server net tune-ups

By Barb Cole

Redwood Shores, Calif.

Oracle Corp. will announce this fall two new tools for tuning and monitoring the performance of Oracle-based applications, databases and networking software, sources at the company said last week.

Oracle Expert provides tuning recommendations after analyzing performance data gleaned from Oracle database servers, front-end applications and Oracle SQLNet networking software, said Gale Taylor, market manager for the tools at Oracle.

The expert system works with the company's second new offering, Oracle Trace, a group of software routines to be embedded in all Oracle software as well as in some third-party products.

Together, the tools will help administrators detect which client is bogging down a server, track the location of users and applications, and assess how those users are affecting the server, Taylor said.

Both tools are based on technology plucked from Oracle's acquisition of Digital Equipment Corp.'s Rdb database last year. They will be sold as add-ons to

Oracle's recently announced Enterprise System Management Environment (NW, June 12, page 10).

Oracle offers other tools for monitoring its servers, but they

PUTTING ORACLE EXPERT TO WORK

► Before Expert:

Most users implemented a combination of Oracle-provided database tuning tools, plus third-party tools, in order to monitor networks and applications.

► After Expert:

Oracle Trace and Oracle Expert collect, report and analyze data on client applications, networking software and Oracle databases. That data is then presented via the Oracle Enterprise System Management performance monitor or is stored in the database, where it can be accessed via SQL-based reporting tools.

provide little information about applications or the networking component.

"The key here is that you get the complete client/server picture," Taylor said.

Information collected by Oracle Trace may be stored in the

Oracle 7 database and retrieved with SQL-based reporting tools, displayed via the Oracle Enterprise System Management console, or fed into Oracle Expert.

If the information is sent to Oracle Expert, the software applies a set of database tuning rules and produces recommended changes that are presented to users via a Windows-based console.

Analysts said products that fully monitor a client/server network are long overdue.

"There is an increasing interest in end-to-end management of client/server systems," said Paul Mason, an analyst at International Data Corp. in Framingham, Mass.

Mason said that Oracle will face competition in this area from Computer Associates International, Inc. and Hewlett-Packard Co., as well as from third-party tool providers such as BMC Software Corp.

Users were enthusiastic about the plan.

"It sounds beneficial, especially in light of the trend toward parallel queries and distributed processing where you spread transactions over multiple machines," said Mat Reagan, manager of technical development at Centocore, Inc., a biomedical company in Malvern, Pa.

Oracle Trace and Oracle Expert are expected to ship by year-end. Pricing was not available.

©Oracle: (415) 506-7000.

Oracle delivers heterogeneous replication

By Barb Cole

Redwood Shores, Calif.

Oracle Corp. will debut several new products at its user conference next month, including software for replicating non-Oracle

databases and tools for building Oracle-based World-Wide Web servers, company officials said last week.

Oracle will demo software for replicating data between IBM DB2 and Oracle databases, said Jerry Baker, senior vice president at Oracle. The plan is to sell server-based modules for replicating data between Oracle and competing databases.

The software works by reading the transaction logs of the databases and offering snapshot replication, which is used to move data from legacy systems to transactional systems or to synchronize mobile databases with those at corporate offices.

Sybase, Inc. has a similar offering for replicating data between SQL Server databases and DB2, and has plans for a Lotus Development Corp. Notes module.

Informix Software, Inc. last month announced a partnership with Praxis International, Inc. to deliver heterogeneous replication. IBM will replicate Sybase, Oracle and Informix databases via its Data Propagator Relational software.

As database vendors move to replicate competing systems, users are still not certain that replicating dissimilar data is something they wish to do.

"Why would I want to do this?" asked Robert Ryen, manager of client/server technical support at the SallieMae Loan Servicing Center in Herndon, Va. Ryen said although he uses several relational databases, he cannot think of an application that would require replication between them.

Oracle also said last week that it will bolster its Internet strategy with Oracle Internet Server,

which will include the Oracle 7 database management system, a Web browser and a Web server. The company is shipping the Web Interface Kit, sample applications to help build HyperText Mark-up Language-based applications, and has announced plans for an Internet commerce client/server application.

"We will offer a complete development and deployment environment for the 'Net,'" said Marc Benioff, vice president at Oracle. Benioff said the browser will be a software component that can be embedded into front ends as either an OpenDoc component or an OLE object.

That software will ship in September, he said. Pricing was not available.

Also in 1996, the company will roll out a suite of Internet-enabled components for messaging, calendaring, document management and workflow. ■

CORRECTIONS

The product chart with the July 17 LAN switches Buyer's Guide (page 57) failed to indicate that Digital Equipment Corp.'s Gigaswitch/FDDI System is a backbone switch. The chart also misstated the switch's backplane capacity, which is 3.6G bit/sec, and buffer size per port, which is 1.5Mbytes.

The July 31 edition (page 25) incorrectly identified the base operating system for TGV, Inc.'s MultiNet for Windows, which runs under Microsoft Windows 3.1 and Windows for Workgroups 3.11.

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StonyBrook Software consolidates mgmt. of multivendor devices

RM/AutoBahn provides single package for bridge, router and switch.

By Jim Duffy

Bohemia, N.Y.

StonyBrook Software last week unveiled software that combines the capabilities of several vendor-specific net management packages into a single product.

RouterManager (RM)/AutoBahn monitors and controls bridges, routers and switches from Bay Networks, Inc., Cisco Systems, Inc., 3Com Corp. and other vendors. It offers an alternative to running multiple applications for controlling different devices.

ROUTERMANAGER/AUTOBAHN FEATURES

- ▶ Offers centralized router configuration management
- ▶ Generates alarms when faults occur or thresholds are crossed in bridges, routers and switches
- ▶ Enables administrators to limit management access to select individuals or groups
- ▶ Pinpoints problem areas in WAN links
- ▶ Enables easy upgrading of router software
- ▶ Supports IETF MIB II standards and private extensions from leading vendors
- ▶ Manages WAN services, such as frame relay and X.25, and supports major routing protocols

RM/AutoBahn runs on Windows 3.1, Windows 95 or Windows NT workstations.

The product's ConfigurationManager manages router configurations from a central location, while AlarmManager

monitors the status of each device and also generates alarms when errors are found or user-defined thresholds are crossed.

SecurityControl is a feature that enables administrators to limit access to RM/AutoBahn, and PathFinder pinpoints problem areas if connectivity between sites is lost or links are congested.

Beta tester Clem Bowen, systems programmer at Buck Consultants in Secaucus, N.J., said a key tool is RM/AutoBahn's route testing feature. "Being able

to see routes between two routers is good because at times it was a guessing game to figure out what was going where," he added.

RM/AutoBahn supports the IETF Management Information Base (MIB) II definitions, as well as the private MIB extensions for products from Bay, Cisco, Digital Equipment Corp., Novell, Inc. and 3Com.

RM/AutoBahn will be available this month and costs \$1,995.

©StonyBrook: (516) 567-6060.

Yes, you CAN protect your network from failure!

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Network mgmt.

Peregrine goes after departmental users with help desk tool

By Jim Duffy

Carlsbad, Calif.

Peregrine Systems, Inc. last week rolled out a departmental version of its help desk software intended to provide users with a scalable problem management system.

ServiceCenter 1.1 is a version of the company's high-end Peregrine Network Management System (PNMS) that now offers Windows NT support, an enhanced graphical user interface (GUI) and a new pricing structure, all intended to make it suitable for midsize organizations and departmental use.

With the enhanced product, Peregrine is lining Remedy Corp. up in its sights. Remedy's Action Request System is one of the more popular help desk packages for the departmental user, analysts said.

"Their challenge is going to be to get mind share because people like Remedy already have excellent [presence] and are particularly well positioned in terms of strategic relationships," said Paul Mason, research manager for enterprise systems management at International Data Corp. in Framingham, Mass.

See Peregrine, page 12

The Xylan OmniSwitch™ is the most failure-resistant LAN switch available.

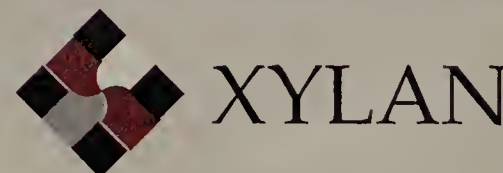
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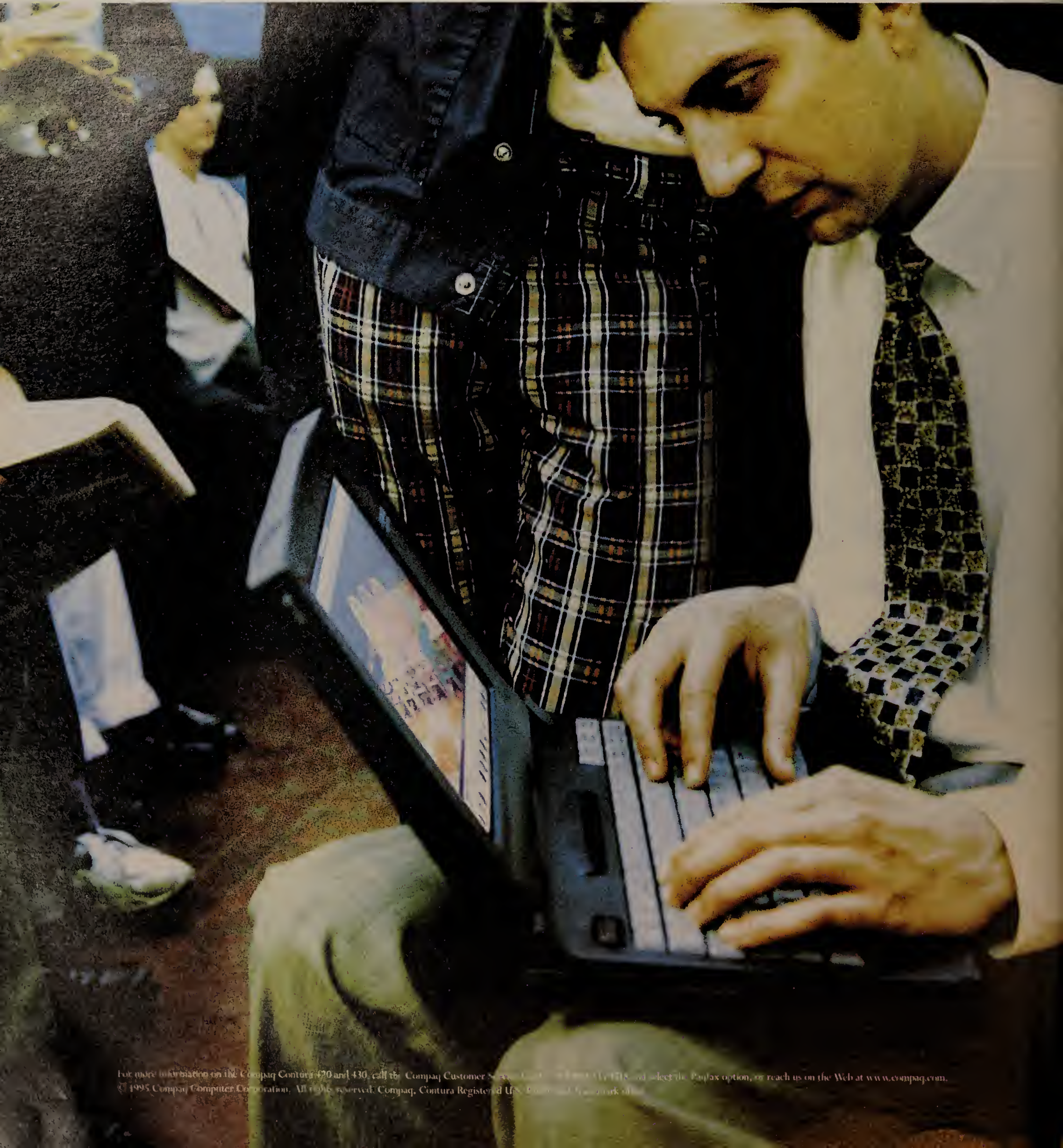
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Peregrine

Continued from page 9

ServiceCenter 1.1 is an integrated suite of applications for identifying and resolving network problems.

It includes applications for fault, change, inventory, financial and order/catalog management, as well as a process modeling engine and a data repository.

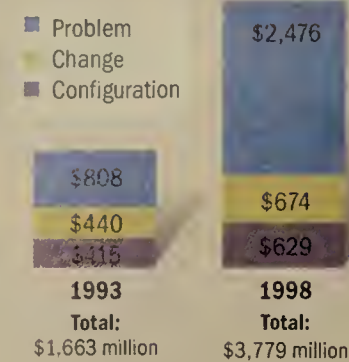
The software runs on Unix, IBM MVS and, now, Windows NT servers. It also runs on Unix, Windows, OS/2 and Macintosh clients on IP, IPX and Systems Network Architecture networks.

The new object-oriented GUI allows users to customize their view and create objects using drag-and-drop techniques.

The product also now has an entry-level price of \$9,120 and three licensing options: floating, named user and concurrent.

SIZING UP THE SERVICE CENTER MARKET

Millions of dollars in sales



Peregrine is looking to grab a bigger chunk of the worldwide market for tools used in network service centers, a market expected to approach \$3.8 billion in 1998.

SOURCE: INTERNATIONAL DATA CORP., FRAMINGHAM, MASS.

PNMS previously was available only under a concurrent license, and pricing started at about \$42,500. ServiceCenter 1.1 is available now.

©Peregrine: (619) 431-2400.

3Com, Chipcom

Continued from page 6

tial profit," the company said.

As Cabletron was mulling its options, 3Com and Chipcom officials disclosed a product integration plan that left some users scratching their heads. Chipcom's Oncore and Online products will be 3Com's premier multifunction backbone switch and wiring closet hub, respectively, said Ron Sege, vice president and general manager of 3Com's hub division.

Currently, 3Com's LANplex and Cellplex products top off the company's backbone switching portfolio, though 3Com officials acknowledged that these "single-function" devices are not as versatile as the Oncore line.

Also, functionality from Chipcom's Onsemble stackable hubs and Ondemand net management products will be melded

with 3Com's SuperStack and Transcend offerings, respectively. Then the Onsemble and Ondemand brand names will be retired, Sege said. Chipcom's Galactica Ethernet switch will be superseded by 3Com's LANplex switches, he said, although a migration plan will be made.

"The Galactica product range is a first-generation switching product," Sege said. "It's time for new technology."

3Com's LinkBuilder Multi-Services Hub (MSH), meanwhile, will be upstaged by the Online products, Sege said. 3Com plans to deliver previously committed switching technology on the MSH, he said, but expects customers to migrate over time to the Chipcom gear.

"Those products have been more successful in the marketplace," Sege said of both the Online and Oncore lines. "And those will be our flagship chassis

products going forward."

Though seemingly straightforward, the product plan left some users concerned. "Network management is a big one," said John Doyle, network manager at the Thomas J. Lipton Co. in Englewood Cliffs, N.J. "We want to make sure that both companies' strategies meld somewhere so we don't have to rip out all of the network management software we have right now."

"If [3Com] really tries to get in there and make a lot of big changes, then I'd be sort of scared," said Robert McKenna, assistant vice president and manager of telecommunications at Sumitomo Bank Capital Markets in New York. ■

COMMENTS?

See "How to reach us" on the Opinions pages.

Bank

Continued from page 1

convenience for customers and lower operational and personnel costs for banks — remains an article of faith for many in the industry. And with PCs becoming a household fixture and Microsoft Corp. and Intuit, Inc. developing new versions of their software to handle on-line financial transactions, home banking may finally get off the ground.

Despite any technical misgivings, banks fear that they have to climb aboard the bandwagon now or get left behind.

Gold rush

In recent weeks, dozens of banks have pledged to deliver on-line banking services that work with applications such as Intuit's Quicken or Microsoft Money. Most first-generation home banking applications were

proprietary, defining specific ways for users to transfer money or check balances.

The new on-line money management packages can also massage the data, producing spreadsheets and tracking expenditures. While that's good news for customers, the banks are forced to support multiple software packages.

Chemical Bank said it will continue to support current and enhanced versions of its proprietary EXCEL software even as it adds support for Microsoft Money for Windows 95 and Intuit's next version of Quicken.

Banks are also rallying around MECA Software, Inc.'s Managing Your Money software, the on-line version of which will be branded for individual banks. MECA was recently purchased by NationsBank Corp. and Bank of America as a bulwark against what some banks view as Micro-

soft's foray into their turf. Many bank officials fear that The Microsoft Network could one day usurp control over bank bill-payment processing.

That fear was heightened by Microsoft's planned acquisition of Intuit that fell apart in May.

For banks, this is a confusing time, where multiple technology and marketing strategies are being pursued to win over customers to home banking, said Christina Ford, vice president of home access strategic implementation at Citibank.

"Just three years ago, everyone used proprietary software," Ford said. "Now it doesn't make sense to be limited to one platform. But there is the burden of supporting multiple platforms."

Lost identity

Only about 50,000 of Citibank's 1.5 million customers have used the firm's service to get account information, transfer money between accounts and pay bills. Citibank has been looking at the Intuit and Microsoft money management packages but worries about the fact that these products do not clearly carry the Citibank brand.

That issue has raised the hackles of many in the industry who also don't like the idea of seeing their bank's name next to competitors in the PC software.

"How can we be sure we're going to preserve our relationship with our customer?" asked Martha Campbell, senior vice president at Bank of America's interactive banking division, which is integrating support for a branded version of the MECA money management software into its network. Bank of America has no plans to support

And in this corner...

How companies exploring electronic banking services are lining up behind a trio of leading money management software packages

Microsoft Money for Windows 95:

Bank of Boston, Centura Banks, The Chase Manhattan Bank, Chemical Bank, Compass Bank, CoreStates Bank, First Interstate Bancorp, First National Bank of Chicago, Home Savings of America, M&T Bank, Marquette Bank, Michigan National Bank, Sanwa Bank California, Texas Commerce Bancshares, Union Bank, U.S. Bancorp, Wells Fargo Bank

Intuit's Quicken:

American Express, Bank of Boston, Chase Manhattan Bank, Chemical Banks, CoreStates Bank, First Interstate Bancorp, First National Bank of Chicago, Home Savings of America, M&T Bank, Marquette Bank, Michigan National Bank, Sanwa Bank California, Smith Barney, Texas Commerce Bancshares, Union Bank, U.S. Bancorp, Wells Fargo Bank.

MECA Software's Managing Your Money:

Bank of America and NationsBank; others expected to be announced soon.

Internet banking a slow sell

While dozens of banks are jumping into PC-based on-line banking through dial-up phone access, they aren't rushing to offer service over the Internet.

Only Kentucky-based Cardinal Bancshares, Inc. has gotten federal approval to provide bank services over the Internet with tough security controls based on Department of Defense computer guidelines.

Specific Internet home banking services have not been announced by Cardinal Bancshares' member banks, but projects are expected to get under way in the fall.

At Citibank, N.A., apprehension about the Internet arises not so much from security concerns as from the sense the 'Net is so far-flung that it's like inviting people in countries across the world to do home banking with you, said Christina Ford, vice president of home access strategic implementation at Citibank.

"We have a Web home page on the Internet, and we'll continue to try and learn everything we can about it," Ford said. "The decision not to offer Internet banking services at this time is basically a business decision, rather than a security concern."

used the services.

"The high costs the banks are charging for these services — \$15 monthly — probably had something to do with this," Cone said. Last May, Citibank decided to drop all fees for PC-based banking to encourage use.

But not every bank is rushing to invest in PC-based home banking services. "Home banking is a great idea. It's cost-effective, like a gas station getting people to pump their own gas," said Tim Rosenbusch, vice president in Banc One Services Corp.'s Information Services electronic banking division.

While reviewing the various alternatives, Banc One has no PC-based home banking plans because officials there believe most national wealth remains in the hands of older people who are largely uncomfortable with PCs. Lack of uniform industry security standards is also a drawback, he noted. ■

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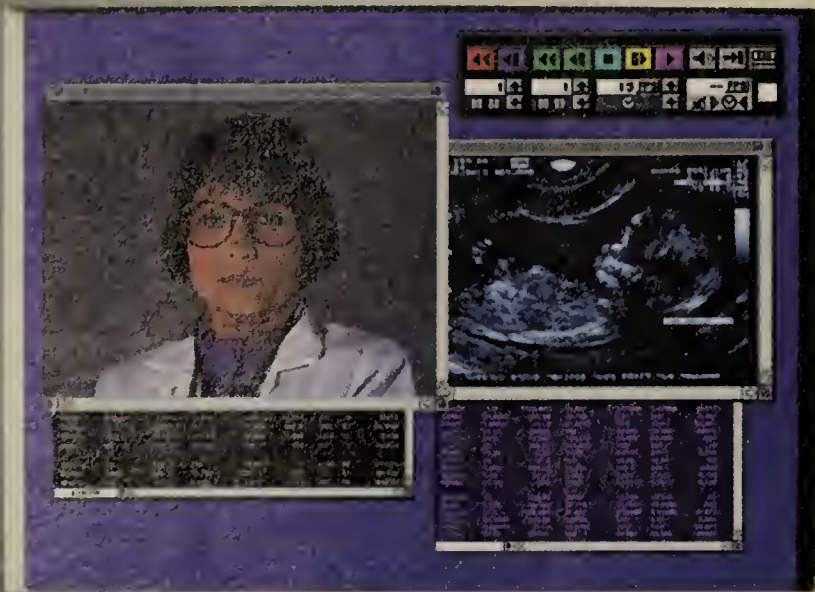
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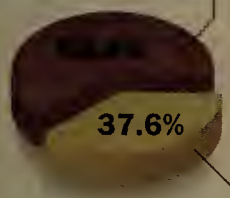
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Briefs

■ **Consumer affinity for 800 numbers** will be a big obstacle for users forced to take new 888 toll-free numbers next year, according to a study by TeleChoice, Inc., a Verona, N.J., market research firm. When told that 888 is equivalent to 800, 85% of the consumers in a test group picked the 800 number. When they were further asked to choose between calling an 800 number to buy a dozen roses for \$25.95 or calling an 888 number to pay a dollar less, almost two-thirds still picked the 800 number.

FAMILIARITY OUTWEIGHS DISCOUNT

Consumers picking 800 offer with higher price



Consumers picking 888 offer with lower price

SOURCE: TELECHOICE, VERONA, N.J.

■ **Microsoft Corp.** last week released **SNA Server 2.11**, an update to the host connectivity application in its suite of Windows NT-based server products. New features include support for dynamic administration, so managers can add sessions and users without bringing down the server; and support for multiple SNA Server subdomains.

Microsoft: (800) 936-3500.

■ **Armon Networking, Inc.** has introduced **NetReporter**, a \$4,000 tool that monitors enterprise network traffic behavior over time and provides graphical and textual reports. NetReporter gathers **LAN segment statistics** from Remote Monitoring (RMON) probes and application-specific, end-to-end traffic data from Armon's proprietary RMON Management Information Base extensions. This data is stored in a SQL database and culled into preformatted, customized reports for use in network planning and configuration.

Armon: (805) 965-0859.

AT&T reaches a data-sharing milestone

By Joanie Wexler
New York

AT&T's year-old vision of on-demand, multimedia phone calls is getting a little more in focus: The company recently launched a version of its own conferencing software that works with its WorldWorx Network Service to let users share and manipulate data among multiple remote desktop computers.

The AT&T WorldWorx group announced that its Vistium Personal Conferencing System now supports collaborative data sessions among six users, who each pay \$1.00 to \$1.30 per minute, not including volume discounts, to work on documents together (see graphic).

The capability joins the multipoint voice and video sessions already supported by World-

Worx among systems that adhere to the H.320 standard for video compression.

The latest development in AT&T's WorldWorx effort is the

The data-sharing portion of that technology is a ways off, in part because the T.120 standard for data conferencing has not been fully ratified, analysts noted.

WorldWorx pricing

Rates for each participant in multipoint conferences of up to six people.

Monthly minimum committed usage	Price for committed usage	Rates for additional minutes (per minute)
0 minutes	\$5	\$1.30
30 minutes	\$40	\$1.20
60 minutes	\$70	\$1.10
120 minutes	\$130	\$1.00

First plan (no usage commitment) is an introductory offer. Also, monthly usage above \$1,500 is eligible for volume discounts. Participants in a conference do not all need to be on the same plan.

tip of the iceberg for the service's grand vision, announced in June 1994: on-demand, dial-up multimedia sessions among any conferencing vendors' equipment.

While the confinement of AT&T data services to Vistium equipment thus far "is a severe limitation, you have to start somewhere," said Christine

Heckart, director of broadband consulting at TeleChoice, Inc., a consultancy in Verona, N.J.

There are between 6,000 and 7,000 Vistium conferencing systems installed today that are upgradable to the data-sharing version, according to AT&T Global Information Solutions, which makes the products.

Heckart added that AT&T's pricing is attractive because customers' only other alternative today for running multipoint data sessions is to buy and maintain their own multipoint bridge, costing \$40,000 to \$60,000 for a four-to-six-user model.

Until now, data sharing over the WorldWorx network was confined to point-to-point sessions among like computers.

Many users have identified this function — which allows

See AT&T, page 21

Sprint starts difficult task of putting PCS house in order

By Joanie Wexler
Kansas City, Mo.

Sprint Corp. has begun the arduous process of figuring out exactly how it will use the spectrum it won in the federal auctions earlier this year to bring personal communications services to mobile users.

All about Sprint Cellular

Number of customers:	1.24 million
Metropolitan markets served:	87
States served:	14
Annual revenue:	\$823 million
Annual growth rate:	43%

All figures are for the 12 months ended June 30.

SOURCE: SPRINT CORP., KANSAS CITY, MO.

One thing has already been decided. The company recently said its PCS venture with several cable television companies has standardized on Code Division Multiple Access (CDMA), which will be its digital wireless technol-

ogy platform for delivering telephony and data-transfer services to workers on the go.

The Sprint Telecommunications Venture — which includes Tele-Communications, Inc., Comcast Corp. and Cox Communications — won PCS licenses covering a population of 182.4 million in the auctions.

In addition, Sprint said it would spin off its Sprint Cellular division as a tax-free unit to its shareholders. The company had to act: The spectrum licenses held by the cellular division overlapped somewhat with those Sprint won in the PCS auctions that it ran counter to the Federal Communications Commission's rules about cross-ownership of PCS and cellular spectrum.

CDMA, one of several technology contenders for forming the basis of PCS, is a spread spectrum-based scheme that, theoretically, offers larger capacity gains than its competitors — Time Division Multiple Access (TDMA) and TDMA's European cousin, the widely deployed GSM, or global system for mobile communications. TDMA is backed by AT&T Wireless Ser-

vices, formed after AT&T's acquisition of McCaw Cellular Communications, Inc. last year.

Users have largely bowed out of the PCS standards wars, focusing mainly on services. The carrier's technology of choice,

however, has some bearing on these concerns — for example, CDMA is said to provide a tenfold capacity increase over the analog network, compared with TDMA's threefold increase. If

See Sprint, page 21

AT&T sticks with cellular

While Sprint Corp. off-loads its cellular business, AT&T continues to chase its wireless dreams. AT&T will soon see its hopes of nationally advertising its cellular services turn to reality. In fact, AT&T is about to launch special offers that are directed at AT&T wire-line customers wanting cellular service.

Based on the services of the former McCaw Cellular Communications, Inc., which AT&T bought last year, AT&T long-distance representatives will start joint marketing of wire-line and wireless services on Sept. 18 for 14 markets. By the end of the year, an additional six markets will be added.

Among the offers will be a 39% discount on cellular long-distance calls for AT&T wire-line customers, available along with an AT&T Portable Cellular Telephone 3810 or an AT&T 6650 digital cellular phone.

National advertising of these offers under the AT&T brand is likely to begin in late October. Such advertising is not allowed to begin until 60% of McCaw's cellular customers have a choice among AT&T and other companies for a long-distance carrier, typically offered through a ballot. Because of what AT&T describes as "a very aggressive balloting process by McCaw," the 60% threshold is expected to be reached Aug. 28.

On the same day, AT&T plans to launch an enhanced paging service, providing users with AT&T long-distance service and an AT&T local numeric pager leased for \$12.95 per month. Business users will receive 200 free messages each month, with additional messages costing 15 cents each.

AT&T: (800) 222-0400.

By David Rohde

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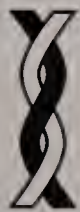
* Includes SPECTRUM v3.1: SpectroSERVER and SpectroGRAPH, and all device management modules for managing Cabletron and third-party devices.

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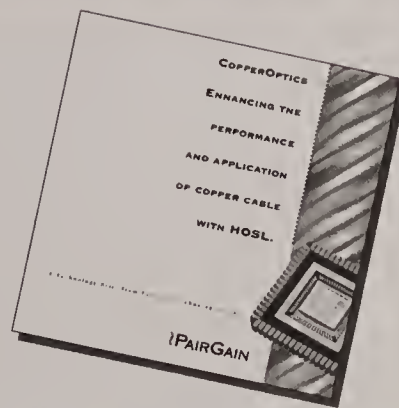
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Sprint/United, other small carriers get into ISDN game

By Tim Greene
Clinton, N.J.

Sprint/United Telephone Company of New Jersey, Inc., the local service arm of long-haul carrier Sprint Corp., will introduce ISDN service in northern New Jersey this fall, plugging one more gap in local ISDN availability that bedevils network architects.

This is the latest move in a corporate strategy to roll out the service, and the company plans to expand farther next year into its eastern Pennsylvania service area.

is trying to sell.

Sprint/United sees the area as rife with other potential telecommuters, according to Bob Roland, the company's market manager for enhanced network services.

Initially, the deployment will be from

the central office switch here, and ISDN will be backhauled to any of the other 25 switches in the network where users want the service, Roland said. When offered this fall, the service will cost between \$36.50 and \$42.50 per month, depending on the line configuration.

Local data calls will cost 3 cents per minute, and local voice calls will have no per-minute charge. Long-distance data connections will be charged at prevailing long-distance voice rates.

So far, the company has one of 26 digi-

tal switches in the area ISDN-equipped. The company has budgeted from \$500,000 to \$5 million to provision its switches for ISDN, depending on customer demand.

Users within 18,000 feet of the equipped switch are charged a onetime setup fee of \$170. If a repeater is needed, the fee is \$400 and the customer must agree to use the service for one year.

The company is alpha-testing Primary Rate Interface lines and plans to file a tariff for them within 90 days. ■

WHO HAS ISDN?

Smaller local exchange carriers project that by year-end, they will offer ISDN capability on the following percentages of their access lines.

Company	ISDN-capable lines
North Pittsburgh Telephone, Pa.	100%
Roseville Telephone, Calif.	90%
Sprint/United Telephone, N.J.	90%
Kerrville Telephone, Texas	54%
Conestoga Telephone and Telegraph, Pa.	1%

GRAPHIC BY TERRI MITCHELL

SOURCE: BELLCORE, LIVINGSTON, N.J.

Since 1992, Sprint/United has deployed ISDN in five of the 19 states where it provides service to cities generally having a population of fewer than 100,000. New Jersey will be the sixth state.

"We put it where we need it for demand reasons," said Joan Jarrett, Sprint product manager for ISDN.

A growing number of independent telephone companies are starting to offer ISDN (see graphic) because they are seeing demand for it rise.

But according to Andrew Kauffman, president of AKH & Associates, a Schaumburg, Ill., ISDN consultancy, there are still pockets without ISDN.

In those locales, users have to fall back on other services, such as switched 56K bit/sec or private lines, which are generally more expensive and less flexible. "It's a real problem," he said.

For example, Patrick Weis, a sales representative for Intel Corp., said he had a potential client in Lincoln, Neb., who was interested in his company's ISDN-based videoconferencing product, but he could not make the sale because Lincoln Telephone Co. does not offer ISDN.

Weis wanted to get an ISDN Basic Rate Interface line at his home in Flemington, N.J., when he started selling Intel videoconferencing equipment last year. Sprint/United is his local exchange carrier and didn't offer the service yet.

However, Weis became a trial user of the service in May and now can make sales calls from his home using the product he

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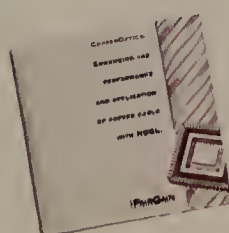
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THAT SAVES THE SALES CALL IS WHEN I SCREAM,

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Scott Bradner



A name illustrious and revered by nations

It's great to see that the com-priv mailing list is back to its true form. This time the controversy rages around one of the very cores of the Internet—the assignment of names.

First, a little bit of background. Computers and services are accessed on the Internet and most other TCP/IP networks using domain names. A domain name is a string of words separated by

periods, and it is hierarchically organized. Ndtl.harvard.edu is a domain name that refers to the computer named "ndtl" at the organization named "harvard" in the branch of the name tree called "edu," meaning educational institutions.

Registration procedures are used to ensure that two organizations or individuals do not try to use the same domain name. This registration process is per-

formed by whatever organization "owns" the point in the hierarchy within the branch. For example, Harvard performs the registration process for names under the harvard.edu domain using whatever rules that Harvard wants to use.

Registration of the more widely used .com, or commercial branch, is performed by InterNIC under contract from the U.S. National Science Foundation.

On Friday, July 28, Network Solutions, Inc. (NSI), the people who manage the InterNIC, sent out a Domain Dispute Resolution Policy Statement. By sometime the following day, com-priv had exploded with messages on the topic, with most of the notes expressing astonishment at what NSI had done.

The gist of the policy statement was that NSI was going to try and get out of the line of fire if two or more companies disagreed over who should have use of a particular domain name.

The problem comes from the fact that on the Internet, one cannot distinguish locality or type of business when confronted with something like ibm.com. For instance, in trademark law, a pizza shop whose named was based on the initials of its founders, Isabella, Bob and Mary, can exist along side of a company selling water-cooled computers. On the Internet, however, there can only be one ibm.com.

The readers of com-priv provided an abundance of legal advice, almost all of it from people who have as much background in law as my neighbor's cat. They came up with all sorts of ways around the problem, from getting everyone to use the geography-based name trees (ibm.armonk.ny.us) to implying that charging for being in .com will make the problem disappear. Some even claimed that there was no problem—the people claiming legitimacy would just go off and sue one another, with the InterNIC being informed of the results.

The food fight on com-priv seems to be based on an inability of some of these people to understand that the Internet is now big business, and business cares very much for the purity of its corporate name. About 2,000 years ago, Lucan spoke of "a name illustrious and revered by nations." If there exists a top-level .com domain, you can be sure the IBM Corporation of Armonk, N.Y., will want to have the name ibm.com and will not settle for any situation where there could be more than one ibm. When businesses argue, they tend to throw lawyers at the problem, and you can bet, Isabella's pizzas won't stand a chance.

This is a messy issue that can't be resolved with simple rules.

A copy of the policy statement can be found at <ftp://rs.internic.net/policy/internic/internic-domain-1.txt>.

Disclaimer: Although Harvard does train lawyers, I am not authorized to advocate their use (or abuse) in this way.

Bradner is a consultant with Harvard University's Office of Information Technology. He can be reached via the Internet at sob@harvard.edu. He shares this space with Daniel Briere and Christine Heckart, whose column will appear next week.



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Positron unveils OC-3 SONET mux

Net managers may find Osiris-Micro's small size and low price attractive.

By Tim Greene

Mount Laurel, N.J.

Positron Fiber Systems, Inc. has introduced an inexpensive OC-3 SONET multiplexer that would fit into large user or carrier nets.

The company is positioning the mux, called Osiris-Micro and priced at almost \$10,000, as a way to open up campus and metropolitan-area nets to public Synchronous Optical Network services, replacing complicated point-to-point meshed links.

Deployed on dual optical fiber rings, SONET standards enable multivendor interworking and support new broadband technologies, including Asynchronous Transfer Mode.

The company also touted Osiris-Micro's small size as a feature net managers might find attractive. It measures 7 by 8 3/4 by 10 inches and can be mounted in a cabinet, or on a wall or table.

"Small and cheap is good," said Tom Nolle, president of CIMI Corp., a technology assessment firm in Voorhees, N.J.

He said the mux might be particularly attractive to competitive access providers that want to keep infrastructure costs low.

With SONET services being offered by AT&T, GTE Corp. and other carriers, nodes can be set up wherever they deliver

the SONET service.

In its initial release, Osiris-Micro does not support OC-3 ATM, but that will change within a year to 18 months, according to Andrew Knott, Positron vice president of sales and marketing.

Osiris-Micro multiplexer

What It Is: A small OC-3 mux that supports SONET fiber data transport technology.

What's In It: Choice of 2, 4 or 7 DS1 interfaces, and 1 or 2 Ethernet LAN interfaces.

Transport capacity: 155M bit/sec

Price: Less than \$10,000

Positron and Eicon Technology, Inc. are working toward migrating their products to support ATM under a Canadian government-funded program called Info-way, he said.

Osiris-Micro features ports for seven T-Is and up to two Ethernet interfaces on the user side; it also has a pair of SONET ports that can each handle 155M bit/sec.

The mux features channel prioritization and can perform inverse multiplexing with its Ethernet board, but not with other ports.

It works off its own management platform called Osiris-Vue, which is based on Microsoft Corp.'s Windows. Osiris-Vue lists for about \$5,000.

The platform supports remote network management and administration, and it also allows new services to be provisioned remotely.

Collocated equipment can also be monitored via Osiris-Vue through integrated alarm inputs at a central management station. An alarm output allows remote control of attached devices, such as a cabinet fan.

Through a local "craft port," Osiris-Vue can also take direct configuration and control commands via Transaction Language 1.

In addition to being a backbone mux for smaller networks, the Osiris-Micro can act as an access multiplexer for larger private or carrier nets.

The multiplexer is part of a family of Osiris muxes, with the next largest supporting as many as 28 T-I interfaces.

Osiris-Micro will be available for delivery in about six weeks.

©Positron: (609) 222-1288.

Versit founders hope to smooth CTI path, bond with rival forum

By David Rohde

San Francisco

Five prominent holdouts last week joined the Enterprise Computer Telephony Forum (ECTF), which is performing standards and interoperability work needed to spur use of computer-telephone integration (CTI).

The five companies are backers of the Versit consortium, a group often viewed as an ECTF rival. They include the four founding members of Versit — AT&T, IBM, Apple Computer, Inc. and Siemens Rolm Communications, Inc. — plus Novell, Inc.

CTI evangelists hope the Versit companies' decision to bond with ECTF will clear away some of the political underbrush that has tended to freeze the desktop CTI market, which is widely thought to lack meaningful applications.

"If you really look at what we have today, we don't have anything," said Jim Burton, president of C-T Link, Inc., a Boston-based consultancy.

Novell has been working closely with Versit because the consortium's favored method to translate PC commands into telephony commands — the Telephony Services Application Programming Interface (TSAPI) — operates over links between NetWare servers and private branch exchange systems.

The Versit consortium has also developed specific formats for data interchange, such as the Versitcard electronic business card. The Versitcard specification allows users to exchange business cards at an electronic meeting (NW, June 5, page 18).

A possible widespread use for Versitcard is for visitors to World-Wide Web sites, said Thomas Lee Schwarcz, director of alliances for Siemens Rolm. Such use could enable Versit operators to obtain more information about their visitors than can be typically gleaned from Internet addresses, Schwarcz said.

In contrast, the ECTF does not officially favor TSAPI or any other technology, hoping to hash out standards in a setting akin to the ATM Forum.

Nevertheless, many of ECTF's 20 to 25 members have tended to focus on Microsoft Corp.'s Telephony Application Programming Interface (TAPI), which,

unlike TSAPI, allows direct client PC control of a desktop telephone without a PBX link. Ultimately, it also will offer call control through Windows NT servers.

TAPI supporters, gathered here recently for one of their periodic testing sessions known as TAPI Bakeoffs, said they expect TAPI to drive CTI usage because it is included in Windows 95.

Shipment of Windows 95 should prod more CTI developers to get the first version of their products to market this fall, Burton said, and when the second versions appear a year from now, "corporate IS [managers] will be ready to say yes."

CTI for under \$300 per desktop

Siemens Rolm's new ComManager Pro package gives users client PC access to all PBX and voice mail features, plus it links incoming and outgoing calls to Windows applications through DDE. It includes:

- ▶ ComManager desktop software
- ▶ Siemens Rolm TAPI driver
- ▶ Snap-In Data Communications Option module for the telephone
- ▶ An RS-232 cable to link the telephone and PC
- ▶ Power supply

PBX models supported:

- ▶ Siemens Rolm CBX 9751 Models 30 and 80

Price: \$299

Available: Now

Even Versit founder Siemens Rolm last month jumped on the Microsoft bandwagon. The company delivered a \$299 desktop TAPI-based call control package (see graphic).

"We are making a fully featured, open, integrated CTI desktop available today for less than the cost of a programmable display phone," said Richard Mattern, Siemens Rolm's vice president of marketing.

While net administrators search for reasons to install CTI applications, individual users can do an end run and use the Windows' Dynamic Data Exchange (DDE) capability to link inbound and outbound caller databases to Windows applications containing notes of previous conversations, Siemens Rolm officials said.

"There are a tremendous number of individuals who can write applications using DDE," said Tony Tissot, Siemens Rolm's director of systems marketing. ■

Advertisement

What's the bottom line on ATM standards and interoperability?



By Joseph Skorupa

Today, ATM standards are well defined. And compliance with these standards is essential for products to interoperate. But the bottom line is that compliance does not assure interoperability.

ATM vendors owe it to their customers to (1) comply with every applicable standard, and (2) back up any claims with actual test data that demonstrates interoperability with other vendors' products.

The key ATM Forum specification is UNI v3.0. It defines four main categories of ATM compliance: 1) physical interface, 2) ATM layer, 3) ILMI, and 4) UNI signaling.

ATM ISSUES ANSWERS

Most ATM vendors are quick to claim "full" UNI v3.0 compliance when, in fact, they only comply in one of the four areas. Usually,

it's the physical layer interface using permanent virtual circuits (PVCs).

To claim full compliance, vendors should define the extent of their products' compliance in all four areas.

FORE Systems, for example, has taken a leading role in defining ATM standards. As

the table shows, FORE's ForeRunner line of ATM products complies with ATM Forum standards in all categories listed. More meaningful, however, is FORE's commitment to actual interoperability.

FORE has completed and documented interoperability testing with more than 30 vendors' products. This written certification is indispensable to companies purchasing ATM products. It's the customers' concern, but the vendors' responsibility.

ATM Specifications	FORE Compliance
Physical Layer Interfaces:	
OC-3, STM-1, and TAXI	✓
DS1, E1, DS3, and E3	✓
ATM Layer:	
Call Admission Control	✓
UPC Policing	✓
Selective CLP Discard	✓
EFCI Flow Control	✓
ILMI:	
MIB Support	✓
Address Registration	✓
UNI Signaling:	
SVCs	✓
OSI NSAP Addressing	✓
AAL (includes SSCOP)	✓

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Business FAX (_____) _____

Internet address _____

1

Industry: (check one only)

- | | |
|---|--|
| 01. <input type="checkbox"/> Manufacturers (other) | 12. <input type="checkbox"/> Government (Federal/State/Local) |
| 02. <input type="checkbox"/> Finance/Banking | 13. <input type="checkbox"/> Military |
| 03. <input type="checkbox"/> Insurance/Real Estate/Legal | 14. <input type="checkbox"/> Aerospace |
| 04. <input type="checkbox"/> Health Care Services | 15. <input type="checkbox"/> Consultants (Independent) |
| 05. <input type="checkbox"/> Hospitality/Entertainment/Recreation | 16. <input type="checkbox"/> Carriers/Interconnects |
| 06. <input type="checkbox"/> Media/TV/Cable/Radio/Print | 17. <input type="checkbox"/> Manufacturers (Computer/Communications) |
| 07. <input type="checkbox"/> Retail/Wholesale Trade/Business Services | 18. <input type="checkbox"/> Resellers of Computer/Network Products (VARs, VADs, Distributors) |
| 08. <input type="checkbox"/> Transportation | 19. <input type="checkbox"/> Systems/Network Integrators |
| 09. <input type="checkbox"/> Utilities | 20. <input type="checkbox"/> Distributors (Computer/Communications) |
| 10. <input type="checkbox"/> Education | 21. <input type="checkbox"/> Other (please specify) _____ |
| 11. <input type="checkbox"/> Process Industries (Mining/Construction/Petroleum Refining/Agriculture/Forestry) | |

2

What is your job function? (check one only)

NETWORK IS MANAGEMENT:

- | | |
|---|--|
| 1. <input type="checkbox"/> Networking Management | 6. <input type="checkbox"/> Corporate Management (CIO, CEO, Pres., VP, Dir., Mgr., Financial Management) |
| 2. <input type="checkbox"/> LAN Management | 7. <input type="checkbox"/> Consultant (Independent) |
| 3. <input type="checkbox"/> Datacom/Telecom Management | 8. <input type="checkbox"/> Other (please specify) _____ |
| 4. <input type="checkbox"/> IS, IT, MIS, Systems Management | |
| 5. <input type="checkbox"/> Engineering Management | |

3

What is the total number of sites for which you have purchase influence? (check one only)

- | | | | |
|-------------------------------------|-------------------------------------|-----------------------------------|----------------------------------|
| 1. <input type="checkbox"/> 100+ | 3. <input type="checkbox"/> 20 - 49 | 5. <input type="checkbox"/> 2 - 9 | 7. <input type="checkbox"/> None |
| 2. <input type="checkbox"/> 50 - 99 | 4. <input type="checkbox"/> 10 - 19 | 6. <input type="checkbox"/> 1 | |

4

What is your scope and involvement in purchasing decisions for network products & services for your enterprise?

A. SCOPE (check one only)

1. ☐ Corporate/Enterprise
2. ☐ Department
3. ☐ None

B. INVOLVEMENT (check all that apply)

1. ☐ Recommend/Specify
2. ☐ Approve
3. ☐ Evaluate
4. ☐ Determine the need
5. ☐ None

5

Check ALL that apply in Columns A and B:

A. I am involved in the purchase of the following products/services:

B. I plan to purchase the following products/services:

- A 100 B LOCAL-AREA NETWORKS**
01. ☐ Local-Area Networks
02. ☐ Network Op. Sys. Software
03. ☐ LAN Storage/Backup
04. ☐ Optical LAN Storage/Backup
05. ☐ Disk LAN Storage/Backup
06. ☐ Tape LAN Storage/Backup
07. ☐ RAID LAN Storage/Backup
08. ☐ Network Test/Diagnostic Tools
09. ☐ Cables, Connectors, Baluns
10. ☐ UPS
11. ☐ Network Interface Cards
12. ☐ Peer-to-Peer LANs
13. ☐ SNMP Network Management
14. ☐ ATM Switches
15. ☐ Token-Ring Switches
16. ☐ Ethernet Switches
17. ☐ Remote LAN Access/Communications Servers
18. ☐ Superservers
19. ☐ File/Application Servers
20. ☐ Print Servers

A 101 B INTERNETWORKING

21. ☐ Bridges
22. ☐ Routers
23. ☐ Bridge/Router
24. ☐ Gateways
25. ☐ Intelligent Hubs/Stackables

A 102 B COMPUTERS/PERIPHERALS

26. ☐ Laptops/Notebooks/Sub-Notebooks
27. ☐ Micros/PCs
28. ☐ Minis
29. ☐ Mainframes
30. ☐ Workstations
31. ☐ Terminals
32. ☐ Printers
33. ☐ Cluster Controllers
34. ☐ Monitors
35. ☐ Fax/Modem Boards

A 103 B REMOTE/WIRELESS COMPUTING

36. ☐ PDAs
37. ☐ PCMCIA Devices
38. ☐ Wireless Data Services
39. ☐ Wireless Data Equipment
40. ☐ Wireless LANs
41. ☐ Cellular Equipment & Services

A 104 B INTERNET/ELECTRONIC COMMERCE

42. ☐ Internet Access Providers
43. ☐ Firewalls
44. ☐ Web Servers/Browsers
45. ☐ Internet Software Tools

- A 105 B SOFTWARE/APPLICATIONS**
46. ☐ Network Management
47. ☐ Systems Management
48. ☐ Security
49. ☐ Communications Software
50. ☐ Terminal Emulation
51. ☐ Word Processing
52. ☐ Operating Systems
53. ☐ Client/Server Applications Development
54. ☐ Database Management/RDBMS
55. ☐ Spreadsheet
56. ☐ Groupware
57. ☐ EDI
58. ☐ E-mail
59. ☐ Windows/Graphical User Interface
60. ☐ Multimedia
61. ☐ Graphics/DTP
62. ☐ Remote Access
63. ☐ Imaging
64. ☐ Suites
65. ☐ Middleware
66. ☐ Document Management
67. ☐ Database Server
68. ☐ Site Metering Tools
69. ☐ Computer-Integrated Telephony (CIT)

A 106 B WIDE-AREA NETWORK EQUIPMENT & SERVICES

70. ☐ Frame Relay Equip./Services
71. ☐ Modems
72. ☐ FT-1/T-1/T-3 Multiplexers
73. ☐ FT-1/T-1/T-3 Services
74. ☐ SONET
75. ☐ Inverse Multiplexers
76. ☐ SMDS
77. ☐ Asynchronous Transfer Mode
78. ☐ Diagnostic/Test Equipment
79. ☐ DSU/CSU
80. ☐ VSAT/Satellite
81. ☐ ISDN Equipment & Services
82. ☐ PBXs
83. ☐ Voice Mail/Response
84. ☐ Videoconferencing
85. ☐ Leased Lines
86. ☐ Switched Data
87. ☐ E-mail/On-line Services
88. ☐ 800/900/MTS Services
89. ☐ Virtual Networks
90. ☐ Outsourcing/Systems Integration Services
91. ☐ Education/Training Services

92. ☐ None of the above (1-91)

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6

What is the total number of LANs, workstations/nodes at this location/ in your organization?

At this location:

- | LANs | Workstations/
Nodes |
|---|--------------------------|
| 1. <input type="checkbox"/> 5,000+ | <input type="checkbox"/> |
| 2. <input type="checkbox"/> 1,000 - 4,999 | <input type="checkbox"/> |
| 3. <input type="checkbox"/> 100 - 999 | <input type="checkbox"/> |
| 4. <input type="checkbox"/> 50 - 99 | <input type="checkbox"/> |
| 5. <input type="checkbox"/> 10 - 49 | <input type="checkbox"/> |
| 6. <input type="checkbox"/> 1 - 9 | <input type="checkbox"/> |

Entire organization:

- | LANs | Workstations/
Nodes |
|---|--------------------------|
| 1. <input type="checkbox"/> 5,000+ | <input type="checkbox"/> |
| 2. <input type="checkbox"/> 1,000 - 4,999 | <input type="checkbox"/> |
| 3. <input type="checkbox"/> 100 - 999 | <input type="checkbox"/> |
| 4. <input type="checkbox"/> 50 - 99 | <input type="checkbox"/> |
| 5. <input type="checkbox"/> 10 - 49 | <input type="checkbox"/> |
| 6. <input type="checkbox"/> 1 - 9 | <input type="checkbox"/> |

7

Check ALL that apply in Columns A and B:

A. The following network platforms are currently installed:

B. The following network platforms are planned for purchase:

A 55 B NETWORK ARCHITECTURES

01. ☐ SNA
02. ☐ DECnet
03. ☐ TCP/IP
04. ☐ Novell IPX/SPX
05. ☐ APPC/APPN/LU 6.2
06. ☐ NETBIOS
07. ☐ AppleTalk
08. ☐ NFS
09. ☐ Other (please specify) _____

A 56 B NETWORK OPERATING SYSTEM

10. ☐ Microsoft (LAN Manager)
11. ☐ Novell (NetWare 2.X, 3.X)
12. ☐ Novell (NetWare 4.X)
13. ☐ Windows NT
14. ☐ Windows NT/Advanced Server
15. ☐ LocalTalk (AppleTalk)
16. ☐ Banyan (VINES)
17. ☐ IBM (LAN Server)
18. ☐ IBM (PC LAN Program)
19. ☐ Artisoft (LANtastic)
20. ☐ Digital (Pathworks)
21. ☐ Other (please specify) _____

A 57 B LAN ENVIRONMENT

22. ☐ 4M Token Ring
23. ☐ 16M Token Ring
24. ☐ Ethernet
25. ☐ 100M Ethernet
26. ☐ StarLAN
27. ☐ FDDI
28. ☐ LocalTalk
29. ☐ 10Base-T
30. ☐ ATM
31. ☐ Other (please specify) _____

A 58 B COMPUTER OPERATING SYSTEM

32. ☐ DOS
33. ☐ Unix/Xenix/AIX
34. ☐ OS/2
35. ☐ OS/2 Warp
36. ☐ IBM MVS
37. ☐ IBM VM
38. ☐ Digital VMS
39. ☐ Macintosh
40. ☐ Windows
41. ☐ Windows 95
42. ☐ X Window System
43. ☐ Solaris
44. ☐ Other (please specify) _____
45. ☐ None of the above (1-44)

8

For which areas outside of North America do you have purchase influence? (check all that apply)

- | | | |
|------------------------------------|---|---|
| 1. <input type="checkbox"/> Europe | 3. <input type="checkbox"/> South America | 5. <input type="checkbox"/> Middle East |
| 2. <input type="checkbox"/> Asia | 4. <input type="checkbox"/> Australia | 6. <input type="checkbox"/> None |

9

Do you have or plan to install client/server networks? ☐ Yes ☐ No

10

Which of the following hardware platforms are installed/planned in your company? (check all that apply)

- | | Mainframes | | Minis | |
|-----------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | A - Installed | B - Planned | C - Installed | D - Planned |
| 1. IBM | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Amdahl | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Cray | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Hitachi | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Unisys | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. HP | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Data General | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Which of the following do you have installed/planned: (USE NUMBERS ONLY)

	At this location:		Entire organization:	
	E - Servers	F - Clients/Nodes	G - Servers	H - Clients/Nodes
1. Power PC				
2. Power Macintosh				
3. Macintosh (Other)				
4. Pentium-based				
5. 80486-based				
6. 80386-based				
7. 80286-based				
8. RISC-based workstations				
9. Other				

11

What is the estimated value of networking equipment and services that you help specify, recommend or approve annually? (check one only)

- | | | |
|--|--|--|
| 01. <input type="checkbox"/> \$100 million or more | 05. <input type="checkbox"/> \$10 million - \$19.9 million | 09. <input type="checkbox"/> \$250,000 - \$499,999 |
| 02. <input type="checkbox"/> \$50 million - \$99.9 million | 06. <input type="checkbox"/> \$5 million - \$9.9 million | 10. <input type="checkbox"/> \$249,999 or less |
| 03. <input type="checkbox"/> \$25 million - \$49.9 million | 07. <input type="checkbox"/> \$1 million - \$4.9 million | 11. <input type="checkbox"/> None of the above |
| 04. <input type="checkbox"/> \$20 million - \$24.9 million | 08. <input type="checkbox"/> \$500,000 - \$999,999 | |

12

Estimated gross annual revenue of your entire company/institution: (check one only)

- | | | |
|--|--|--|
| 1. <input type="checkbox"/> \$10 billion or more | 4. <input type="checkbox"/> \$100 million to \$499.9 million | 7. <input type="checkbox"/> \$5 million to \$9.9 million |
| 2. <input type="checkbox"/> \$1 billion to \$9.9 billion | 5. <input type="checkbox"/> \$50 million to \$99.9 million | 8. <input type="checkbox"/> \$4.9 million or less |
| 3. <input type="checkbox"/> \$500 million to \$999.9 million | 6. <input type="checkbox"/> \$10 million to \$49.9 million | 9. <input type="checkbox"/> None of the above |

13

Estimated number of employees at this location/in entire organization:

- | At this location: | Entire organization: |
|---|---|
| 1. <input type="checkbox"/> Over 10,000 | 1. <input type="checkbox"/> Over 10,000 |
| 2. <input type="checkbox"/> 5,000 - 9,999 | 2. <input type="checkbox"/> 5,000 - 9,999 |
| 3. <input type="checkbox"/> 2,500 - 4,999 | 3. <input type="checkbox"/> 2,500 - 4,999 |
| 4. <input type="checkbox"/> 1,000 - 2,499 | 4. <input type="checkbox"/> 1,000 - 2,499 |
| 5. <input type="checkbox"/> 500 - 999 | 5. <input type="checkbox"/> 500 - 999 |
| 6. <input type="checkbox"/> 499 or less | 6. <input type="checkbox"/> 499 or less |

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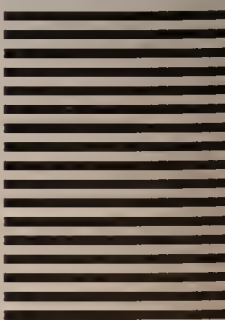
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BusinessBriefs

General DataComm, Inc. (GDC) is creating a reseller division to find new ways to distribute the company's Asynchronous Transfer Mode switches, multiplexers, high-speed modems and LAN internetworking products. The company plans to use distributors, value-added resellers and systems integrators as resellers. GDC also announced that France Telecom has chosen GDC's APEX ATM equipment for the edge nodes in its network.

GDC: (203) 574-1118.

Centigram Communications Corp. and **Priority Call Management** announced a strategic alliance to market their one-number wired and wireless calling products. The alliance will promote Centigram's Adaptive Information Processing platform, which manages voice, data and fax messages, and Priority's MSX platform, which manages call routing.

Centigram: (408) 944-0250; Priority: (508) 658-4400.

Sprint Corp. said it has signed a multi-year contract with **General Electric Co.** valued at several hundred million dollars. Services to be provided include frame relay, X.25 and private-line networks, plus 800 service, FONcard calling cards, customized operator-assisted calling, audioconferencing and laptop remote dial-in access compatible with the Internet.

Sprint

Continued from page 15

that's true, it could result in higher network uptime and, eventually, lower delivery of service cost per user.

But "nobody knows what a CDMA call on a fully loaded network sounds like," as CDMA will not be deployed until early next year, noted Bill Frezza, president of Wireless Computing Associates, Inc., a consulting firm in Yardley, Pa.

In fact, PCS has a long road to hoe before it can compete with the likes of analog cellular services, which are ubiquitously deployed, analysts noted. Frezza estimated it will take a decade for the PCS auction winners to fully deploy services since the PCS bands must be cleared of former occupants and licensees have entire infrastructures to build.

"Analog cellular is as good as it gets," he said. "What can you offer users to lure them to digital other than price? And the analog providers have room [to lower prices], so hanging your hat on price is a lousy strategy." ■

Network management

IBM, Digital announce client/server manager

By Jim Duffy

Raleigh, N.C.

IBM and Digital Equipment Corp. have together unveiled a new version of NetView for AIX that they claim enables teams of users to cooperatively manage large, heterogeneous networks.

IBM and development partner Digital rolled out NetView for AIX Version 4, a client/server implementation of the management software that also features enhanced security, event correlation and Simple Network Management Protocol Version 2 capabilities. This release of NetView had been expected (NW, Jan. 30, page 1).

With the new client/server capabilities of NetView for AIX v4, the graphical user interface (GUI) processing is off-loaded from the server to the AIX workstation. This frees up the server for more management application processing and allows teams of network operators to share management data and applications. The previous version used the X Window System for client presentation.

Analysts, though, said NetView for AIX v4 is a step toward client/server, rather than a true client/server offering.

"We don't have applications [processing] on the clients yet," said John McConnell, president

of McConnell Consulting, Inc. in Boulder, Colo.

Nonetheless, as many as 30 clients can now share a single NetView for AIX server, said Gerry Young, IBM SystemView consul-

NETVIEW FOR AIX v4 FEATURES

- ▶ Client/server implementation
- ▶ Distributed security
- ▶ Event correlation
- ▶ SNMPv2 enabled
- ▶ Object collection
- ▶ Backup manager enhancements

tant. Previously, with Version 3 of NetView for AIX, about 15 to 20 clients could access a single NetView for AIX server. Hewlett-Packard Co.'s OpenView Network Node Manager 4.0 also off-loads GUI processing from the server to the client. That release is to ship in October.

Meanwhile, other features of NetView for AIX v4 include distributed security, in which logons are authenticated and operators are only allowed access to a predefined set of operations and customized menu bars, as well as tool palette displays.

For alarm management, NetView for AIX v4 now features an event correlation daemon. This allows users to create rules to help recognize the relationship

AT&T

Continued from page 15

them to jointly edit documents, manipulate blueprints, tweak advertising layouts and perform other tasks — as the most useful aspect of an electronic conference.

Advertising agency McCann-Erickson-New York, for instance, has gotten started with WorldWorx data sharing as a time management tool, alleviating hours of travel time each week in the deadline-oriented business to visit clients in person to present ad mock-ups, said Steve Poppe, vice president of management at the agency.

Copywriters and art directors found that holding up ads to a video camera in a standard videoconference was a poor substitute for meeting in person because the quality of the ad degraded. But the data-sharing capability allows clients to see a true representation, he added.

AT&T WorldWorx partners

Apple Computer, Inc., whose QuickTime conferencing software is due out later this year, and ProShare conferencing software maker Intel Corp. said their conferencing products would support WorldWorx data sharing in the first half of next year. IBM and Sun Microsystems, Inc. said their conferencing products would be WorldWorx-compliant by the end of 1996.

AT&T did not say when other key WorldWorx allies would support multipoint data sharing. Conferencing system makers Compression Labs, Inc., PictureTel Corp., VTEL and others "are not as far along toward having [WorldWorx-compatible] products available" as Apple, IBM, Intel and Sun are, according to Ernie DeNigris, AT&T's vice president of WorldWorx Network Services.

AT&T is running a pricing promotion whereby any user that signs up for service before Dec. 31 will have its monthly service fees waived for six months. ■

of multiple events and execute appropriate action routines.

NetView for AIX v4 will support SNMPv2's bulk data transfer and manager-to-manager communications capability later this year, Young said. But the security component of SNMPv2, the implementation of which is being debated by the protocol's authors, will have to wait (NW, June 26, page 1).

"We're holding off on the security piece until it's better defined by the standards," Young said.

Other enhancements to NetView for AIX that come with v4

include a new object collection facility that groups devices into objects and allows operations to be applied to the entire group through a single command.

"That's been real beneficial because we had things scattered all over a bunch of different maps," said Jerry Wetherington, systems coordinator at the University of Florida in Gainesville.

NetView for AIX v4 will be available from IBM on July 28 and from Digital on Sept. 1. It costs \$15,000 per server and \$500 per client.

©IBM: (800) 426-2255; Digital: (800) 344-4825.

Sprint adds Fore Systems switch offering to its T-1 ATM recipe

By David Rohde

Kansas City, Mo.

Sprint Corp. last week said it would offer a Fore Systems, Inc. Asynchronous Transfer Mode premises switch to users interested in extending ATM from the LAN to the WAN at T-1 speeds.

The carrier, in formally announcing availability of T-1 ATM service, said it would offer the ASX-200BX switch from Fore. It will also offer access concentrators from ADC Kentrox that support conversion of data into T-1 ATM cellstreams. The T-1 offering that bundles the ADC Kentrox equipment had been expected (NW, July 24, page 1).

Users and analysts have been awaiting T-1 ATM as a lower cost alternative to long-distance T-3 ATM connections. As in T-1 frame relay, the carrier will offer permanent virtual circuits (PVC) under a choice of billing plans.

"We want to keep it at parity with frame relay service," said Cathy Gadecki, Sprint's ATM product manager. "We don't want pricing to be a determinant [of which service to choose]."

Rather, Sprint will focus on key functional differences between the T-1 fast-packet offerings. For example, the fixed cell-size characteristic of ATM will allow Sprint to offer the option of constant bit rate PVCs suitable for video transmissions, which would tend to break up under the alternative variable bit rate transport.

The higher overhead of ATM, as opposed to frame relay, will reduce the amount of data capable of being sent through T-1 access links from the 1.544M

bit/sec T-1 standard to an effective throughput of 1.39M bit/sec, Gadecki acknowledged.

But while the standard method of determining where cells start and stop — called ATM Physical Layer Convergence Protocol (PLCP) — further reduces throughput to 1.17M bit/sec, Sprint is using an alternative to PLCP called Header-Error Check (HEC).

Users and analysts have been awaiting T-1 ATM as a lower cost alternative to long-distance T-3 ATM connections.

Instead of adding a layer of overhead to perform cell delimitation, HEC more efficiently uses the fifth byte of ATM's 5-byte header to perform the function, said Steven Taylor, president of Distributed Networking Associates, a consulting firm in Greensboro, N.C.

This uses information already in the net, rather than adding information, he explained, thus preserving the bandwidth that would have been used by PLCP.

To accept T-1 into its ATM service originally built around T-3 transport, Sprint is deploying the AMS 5001 ATM access switch from Hitachi, Ltd. The Hitachi switch aggregates T-1 ATM into T-3 cellstreams for shipment onto the carrier's backbone switches from NEC America, Inc.

Gadecki said the Hitachi access switches are being deployed into four locations. She did not disclose the specific sites but added that more will be deployed based on demand.

"Our plans are to go to eight sites by early next year," she said.

For Sprint users, the Fore option opens up the possibility of end-to-end ATM transport without the need for a data exchange interface. Fore said it has signed up for Sprint's T-1 ATM service to link its development centers. ■

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the software.*



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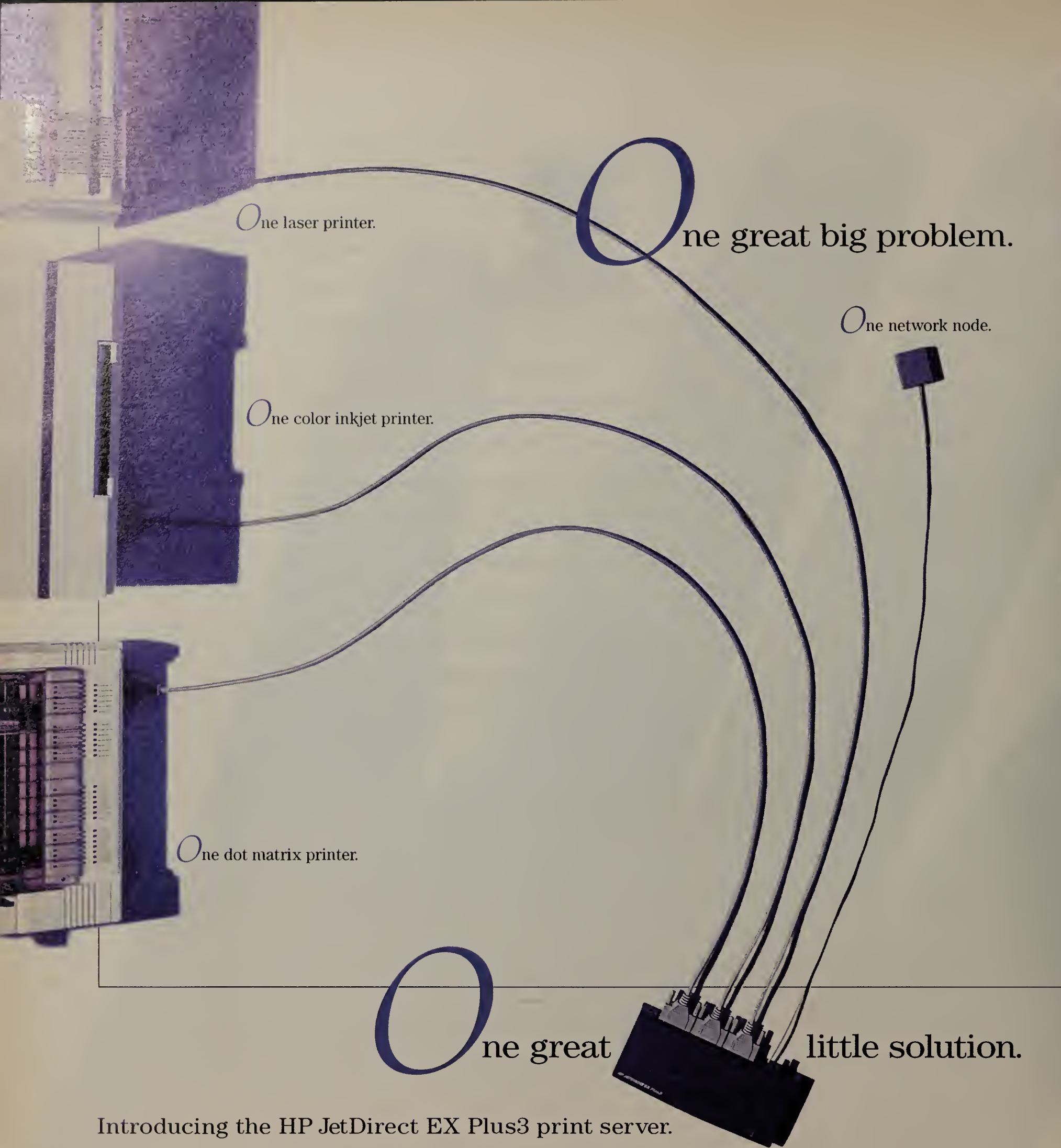
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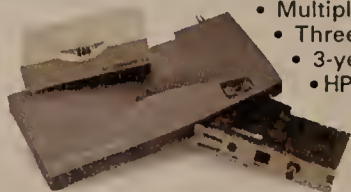
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INSIDE LAN WORLD

Novell plans NetWare client for mobile workers.
Page 2L

Microsoft is counting on third-party applications to bolster its Systems Management Server platform.
Page 6L

Report cites growth in ISDN and ATM in LAN environments.
Page 13L

Biscom makes faxing easier with new translation server.
Page 13L

Le Baron and MacAskill discuss Cabletron's shrewd business move to thwart 3Com-Chipcom merger.
Page 15L

Briefs

■ **Performance Technology, Inc.** of San Antonio, Texas, this month will ship *Instant Internet 2.0*, a hardware/software package that **connects LAN users to the Internet**. Security is enhanced because access is routed through the *Instant Internet* hardware; a TCP/IP stack does not run on any individual workstation.

The update accommodates a dual-Ethernet option, so users can install *Instant Internet* with an external router on a separate LAN segment. The product is packaged in varying configurations, which start at \$3,495 per unit for 50 users. Upgrades are free to current users.

Performance Technology:
(210) 979-2000.

■ **Network Computing Devices, Inc. (NCD)** of Mountain View, Calif., expects to ship this month a **PowerPC version of PC-Xware for Windows NT**, an X Window server. PC-Xware, already available on Intel systems, runs as a native Windows NT 32-bit application and lets users run X-terminal sessions using a shell with graphical commands. It will be priced at \$545.

NCD: (415) 694-0650.

Shareware brings creativity to LANs

By Mark Gibbs

In this quarter's look at hot LAN tools, we will examine products from the shareware market — a source of networking software that network managers should not overlook.

Shareware, based on the idea of "try before you buy," gives software authors a low-cost way to enter the marketplace.

Shareware vendors offer software on the honor system; after so many days, if you like the application, you pay to register as a user. If you don't like it, you are supposed to stop using it.

In general, shareware is cheaper than software distributed through regular commercial channels but usually features less sophisticated support.

However, when it comes to creativity, shareware stands out. Shareware providers often im-

plement ideas and solutions that more formal and staid mainstream software vendors have either not even conceived of or have ignored.

To see what kind of shareware tools are available for networks, we checked out various forums on CompuServe.

Finding the true path

A company that caught our eye was Computer Tyme, Inc., which offers a number of interesting and useful products on a shareware basis.

One such product is FixPath, a handy DOS utility that reads the PATH environment variable and checks to see if all of the referenced directories actually exist. Any directories that don't exist, or are inaccessible, are removed from the path.

FixPath is particularly helpful

Apple debuts networking tools, MacX server at MacWorld Expo

By Peggy Watt
Boston

Apple Computer, Inc. is expected to announce at this week's MacWorld Expo/Boston the availability of several networking products, including its MacX Unix server and an update to Open Transport.

MacX, an X Window server, runs natively on the Power Macintosh and 68000-based systems but can open a window to Unix data and communications. It was developed in conjunction with AGE Logic, Inc. of San Diego, which markets the technology as XoftWare for MacOS.

Apple is also releasing a bug-fix update to Open Transport, its multiprotocol network software.

Open Transport, currently shipping with the Power Macintosh 9500, supports TCP/IP, X/Open Transport Interface, Unix STREAMS and, eventually, IPX/SPX.

Version 1.0.6 supports the next round of Macintosh systems based on the PCI bus, which are expected to debut at MacWorld,

as well. The update also improves Open Transport's backward compatibility with SLIP and PPP, and fixes a glitch that sometimes truncated very large files transferred over TCP/IP, according to Garry See *MacWorld*, page 2L

Simware unwraps NetWare 4.X migration tool

By Peggy Watt
Ottawa

Novell, Inc. customers considering a move from NetWare 3.X to 4.X will get some help next week when Simware, Inc. begins shipping a migration tool designed to ease the upgrade process.

REXXWARE Migration Toolkit is based on the REXX language kernel, from which Simware also derives its REXXWARE scripting language, a NetWare Loadable

Hot LAN tools

Vendor	Product	Function	Platform	Pricing
Computer Tyme, Springfield, Mo.	FixPath	Ensures accuracy of DOS environment path	DOS	\$20 per user; \$95 per server; \$995 per site license
	LogOff	Provides equivalent of Novell's LogOut program; ensures accuracy of DOS environment path	DOS and NetWare (all versions)	\$95 per server; \$995 per site license
	Break	Prevents users from using a break sequence to abort a batch file	DOS	\$20 per user; \$95 per server; \$995 per site license
	Comspec	Stops users from shelling to DOS	DOS	\$20 per user; \$95 per server; \$995 per site license
DVD Software, Irvine, Calif.	NovSync	Synchronizes workstation and server clocks	DOS and NetWare 3.X/4.X	\$95 per server; \$995 per site license
	Ungame	Searches for, detects and, optionally, deletes games from server or workstation disks	DOS	\$39.99 per server
	Extensions Software, Kissimmee, Fla.	Provides network-based message forum system for Windows	Windows and NetWare 3.X/4.X	From \$249 for 25 users to \$2,799 per site license

in preventing DOS errors when a user logs off a network or changes drive redirections. The only drawback is that if more than one command processor is in memory, FixPath will change only the path of the command processor that is its direct parent.

For NetWare networks, Computer Tyme has built the features of FixPath into its LogOff program. This works just like Novell, Inc.'s LogOut except that, like FixPath, it examines and modifies the PATH specification. An optional switch forces the current drive to be mapped to the Login subdirectory.

One of the big problem areas for network managers is keeping users under control. The trouble

is that most applications are designed as if all users know what they are doing, have read the manual and will not pick up the telephone as soon as something does not work just right.

This means that ways have to be found to prevent users from doing things that might mess up their computer's configuration or operation.

Computer Tyme's Break.Sys is a device driver that keeps users from breaking out of batch files, a source of almost limitless support headaches.

Although similar programs exist, Break is smarter than most. If a user enters Control+C, Control+Break, or Alt+3 under com-

See *Shareware*, page 10L

Module it introduced last year.

But the new tool kit goes beyond scripting to help network managers actually automate the time-consuming process of upgrading to the new NetWare, said Christopher Fedorko, Simware's vice president of marketing.

"Moving from NetWare 3.1 to 4.1 isn't just an upgrade; it's going from something server-centric to something network-centric," Fedorko said.

"In the enterprise, when you

consider changing environments, you have to minimize the risk," he added.

REXXWARE Migration Toolkit leads a network manager through the steps of assessing, planning and conducting a NetWare upgrade.

Among other things, Migration Toolkit can audit the network to identify user and equipment configurations, help model the new network design and cre-

ate a network map, import data, and merge duplicate objects in

See *Simware*, page 12L

UPGRADE RELIEF

Migration Toolkit uses REXXWARE scripting technology to automate many manual upgrade steps, reducing typos and operator errors.

New NetWare client going mobile

By Kevin Fogarty
San Jose, Calif.

Within the next few weeks, Novell, Inc. will ship to beta sites a new NetWare client designed to make life easier for users who spend a lot of time on the road.

The product is referred to as Mobile NetWare Client, although a formal name has not been chosen. It is designed to cache traffic that would normally move between the client and server to let users not physically connected to the net conduct business as if they were in the office, said Steve Tucker, vice president and general manager of Novell's Advanced Access Applications group.

The client keeps track of server-based files that a user accesses frequently and stores copies to local disk. It also lets users issue print commands and store print jobs to queues. When the client connects to the network, it synchronizes the local and server copies of the files and sends print jobs to a printer selected by the user. Users have to select a printer in their new location, but they do not have to

try to remember which documents they want to print.

"Our intent is to make life easier for NetWare users who need to move from location to location and work even when they're not connected," Tucker said. "We have to [make] the presence or absence of the network transparent."

The client will also contain a facility that lets users create profiles, or sets of operating rules, for the different locales from which they work. For example, a user can establish the profile "hotel" that limits the amount of file synchronization traffic running across a costly dial-up hotel phone line.

Users can input local access numbers for various locations as well as synchronous logon information for when they are working out of a branch office. They will also be able to profile the printers and other resources available at each location,

according to Tucker.

The Mobile NetWare Client will support IPX or TCP/IP connections and access servers running Novell's NetWare Connect remote access server, although customers will not need a separate NetWare Connect client, he said.

The first release, expected this year, will be for Windows 3.1 and will be based on the Virtual Loadable Modules that existing NetWare clients use. The second version will support

Windows 95, but plans for Macintosh and OS/2-based clients are uncertain, Tucker said.

Future versions will be based on the NetWare I/O Subsystem (NIOS) that underlies Novell's upcoming multiplatform Client32 products.

Future NIOS clients will be modular and include as much of the mobile client technology as a user wants, Tucker said.

©Novell: (800) 638-9273.

"Our intent is to make life easier for NetWare users who need to move from location to location and work even when they're not connected."

A MacWorld coming-out party

Company	Product	Description
Apple	Mac X	X Window server
	Open Transport	Multiprotocol communications software
Wall Data	Mac RUMBA	Host connectivity software
Sonic Systems	PRA	Remote access software
4-Sight	4-Sight Fax 3.1	Macintosh fax server

MacWorld

Continued from page 1L

Hornbuckle, Apple's manager of communication products.

General release of Open Transport is still on schedule for this fall, Hornbuckle said. It is intended primarily for the installed base of Macintoshes and will be fully integrated with 68000 machines.

A number of other network-related products from Macintosh developers are being announced at MacWorld:

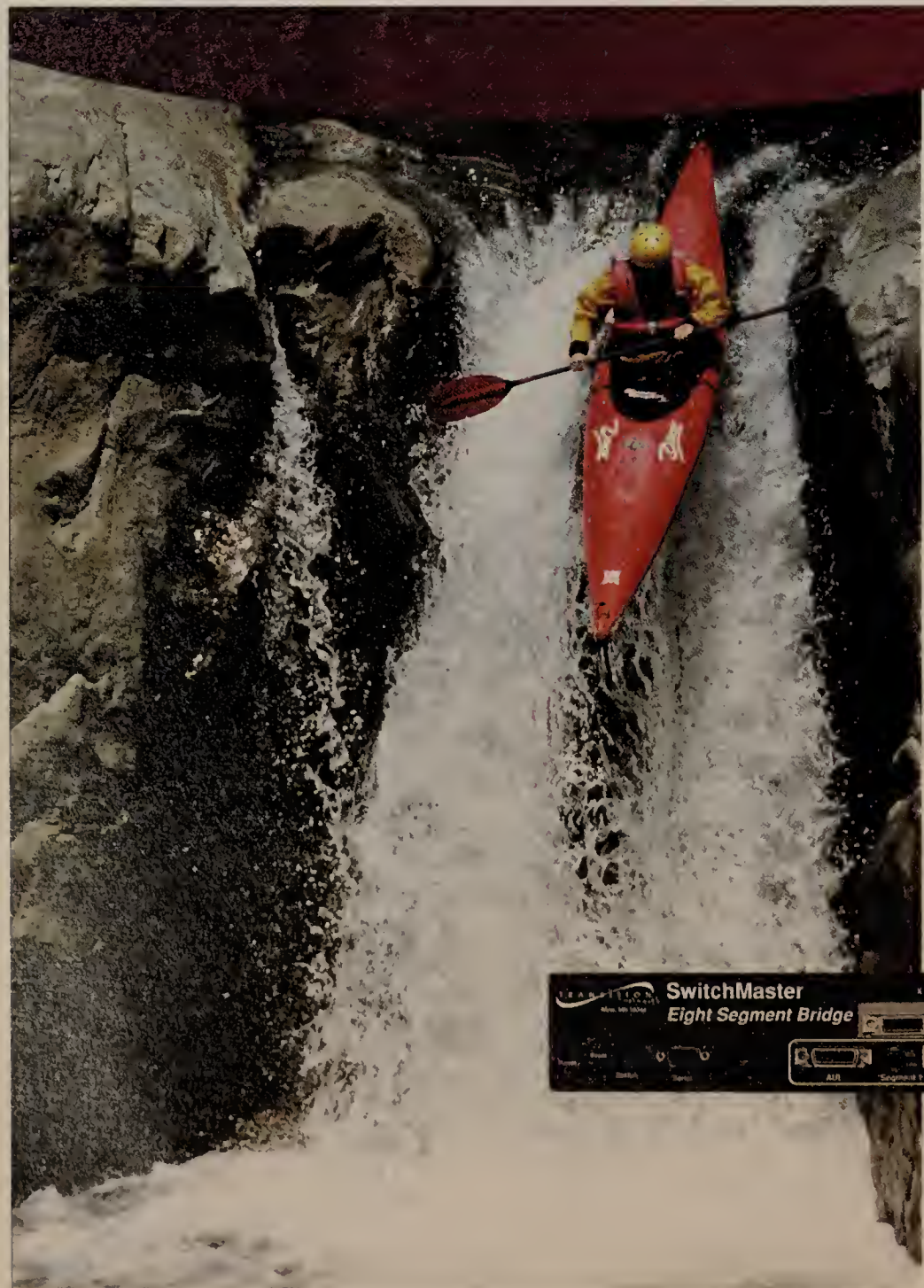
■ Mac RUMBA for the AS/400 and Mac RUMBA for the Mainframe, updates to the SNAps host connectivity product line, will be unveiled by Wall Data, Inc. of Kirkland, Wash. The new versions provide an improved interface with customizable toolbars,

scripting tools and support for high-speed file transfers.

■ Sonic Systems, Inc. of Sunnyvale, Calif., is introducing PRA, a PPP remote access software server that supports native AppleTalk and standard TCP/IP. It runs in the background on a host Macintosh and is priced at \$399 for the server software, with an unlimited license for SonicPPP client software.

■ New members of the 4-Sight family of network fax solutions, including 4-Sight Fax 3.1 and the new PC-Link Fax Windows, will be shown by 4-Sight Co. of West Des Moines, Iowa. The products add a direct inward dialing option to enhance fax security.

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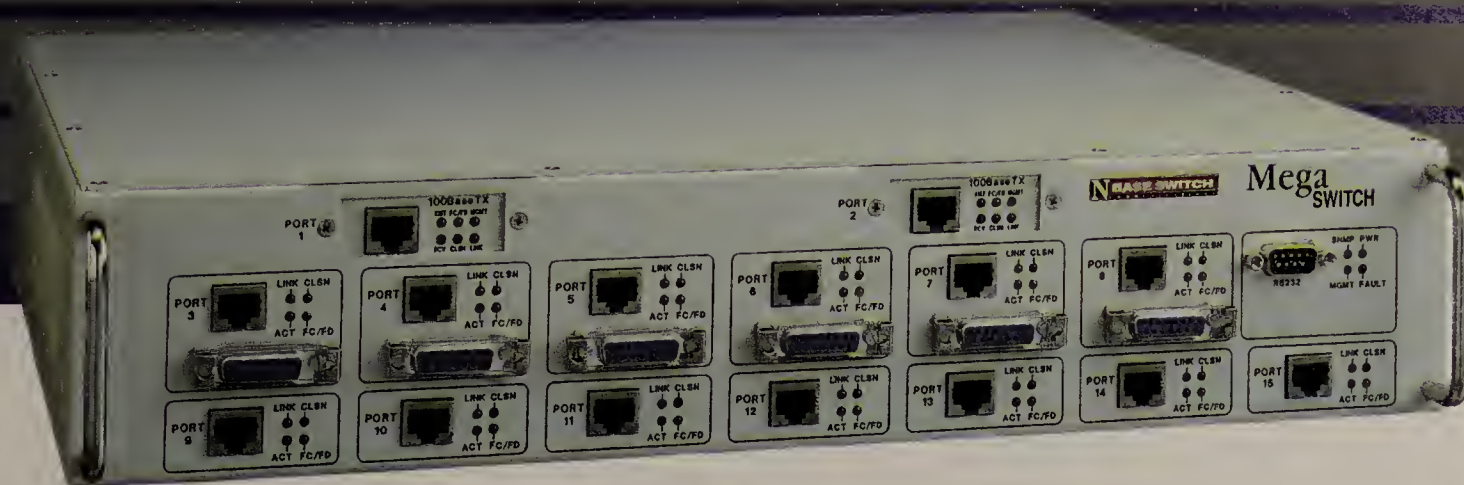
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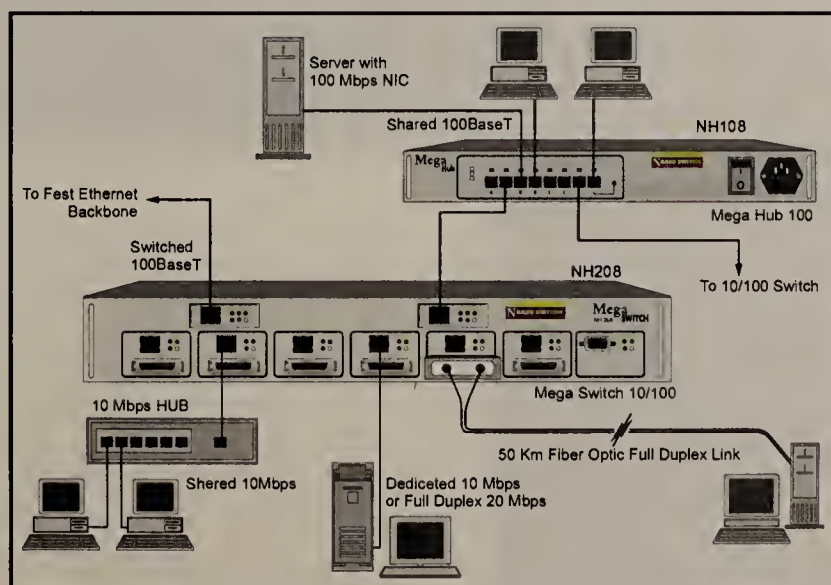
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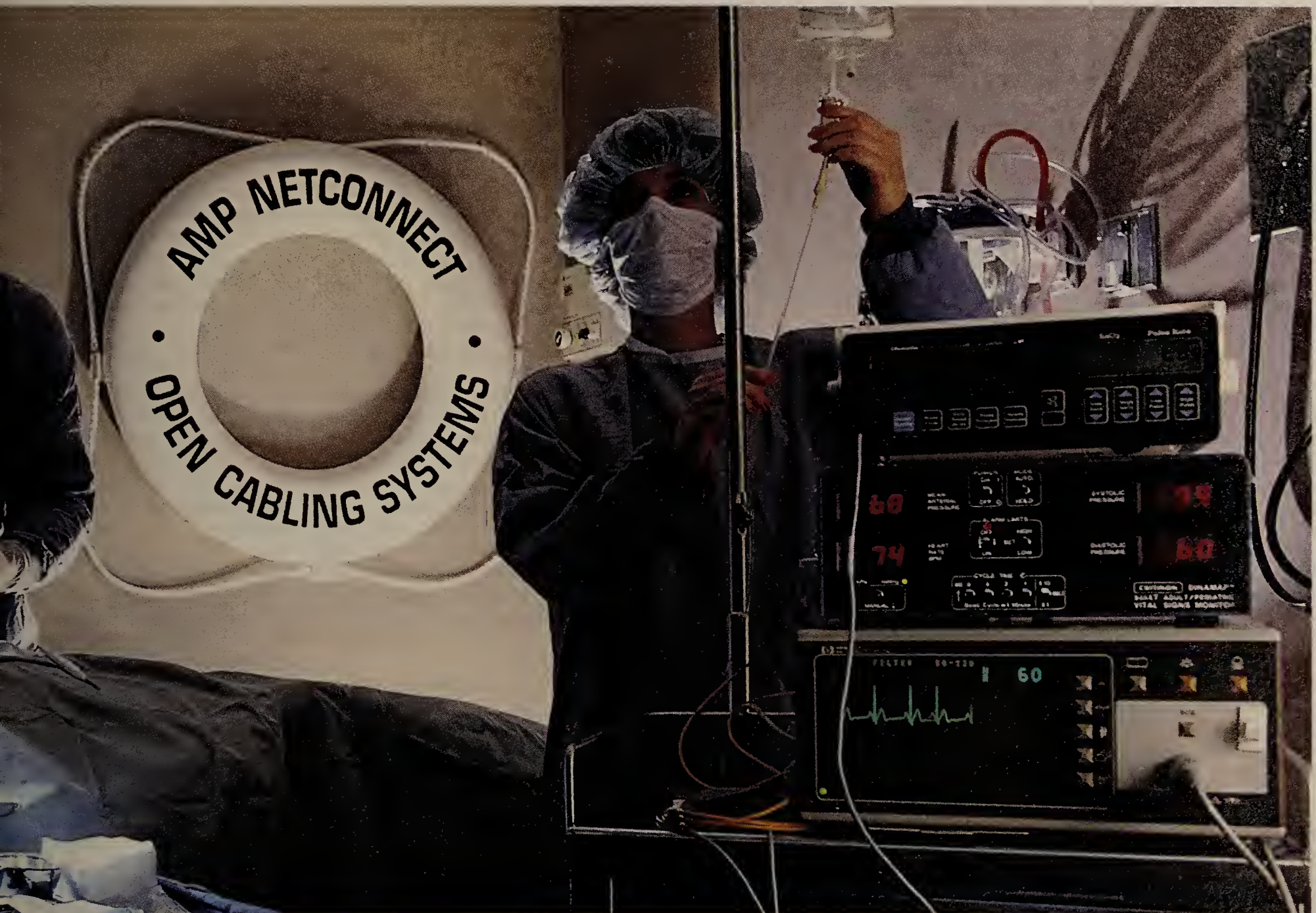
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AMP

Systems Management Server extends its reach with ISV apps

By Jill Huntington-Lee

Barely a year out of the chute, Microsoft Corp.'s Systems Management Server is turning the corner from an experimental novelty to a serious management platform upon which customers depend and for which third-party independent software vendors (ISV) are developing applications.

"Saving legwork is Systems Management Server's greatest benefit," said Matt Chamberlain, program manager for Quickstart Technologies, a Newport Beach, Calif.-based consulting and training company specializing in Microsoft BackOffice technologies. Chamberlain is helping deploy Systems Management Server at a large, multinational high-tech manufacturing firm.

"Our client faces an enormous task installing internally developed applications on over 6,000 desktop systems worldwide," Chamberlain said. "[The company] needs to know exactly what software is installed on all of these clients in order to avoid conflicts with new applications. Short of walking around to check each machine, there's no better way of ensuring a comprehensive listing than using Systems Management Server to inventory all of the clients."

Additionally, the manufacturing firm is investigating using Systems Management Server to update its Novell, Inc. NetWare client computers with the newest Virtual Loadable Module (VLM) software.

"Just finding out which PCs have VLMs and which are still using NETX.EXE will be a huge benefit," Chamberlain said.

Taking stock

Inventory is one of six main functional areas addressed by Systems Management Server. The others are remote control and troubleshooting of PCs, software distribution, application monitoring and low-level network traffic monitoring.

"Right now, we're focusing on the inventory feature and software distribution," Chamberlain said. "We started installing SMS Site Servers about two months ago, and we've already done distributions of the client piece of a client/server application written in-house."

The software is an employee evaluation application used by approximately 350 managers throughout the manufacturing

firm's U.S. division. "We chose that application because of the relatively small target group," he said. "But we did this in a production network with a live test group — we figured that we would encounter all the real-world problems we'd see down the road."

via Systems Management Server. A PDF is an ASCII text file containing predefined property settings for workstations, sharing policies and other features required by the software distribution package. The PDF must include, among other items, command lines that create the

A management checklist

Technology acquired from Network Managers and applications from independent software vendors (ISV) will help Microsoft bolster the usefulness of its Systems Management Server.

Systems and network management function	Handled by Microsoft's Systems Management Server	Handled by Network Managers' NMC 4000
Fault detection (SNMP traps)	No	Yes
Alarm display	No	Yes
Network traffic monitoring	Yes	Yes
Hardware/software inventory	Yes	No
Network device discovery	No	Yes
Network mapping	No	Yes
Software distribution	Yes	No
Remote control of PCs	Yes	No
PC diagnostics	Yes	No
Network device configuration	No	Yes (in conjunction with ISV applications)
Scheduled backups on heterogeneous networks	No	No*
Hierarchical storage management	No	No*
Lights-out unattended monitoring of remote sites	No	No*
Resource accounting and usage-based billing	No (but supported somewhat in Windows NT)	No (but NT facility could be augmented by ISV applications)
Secured Internet connectivity	No	No*
Software metering	No	No*

* Must be handled by ISV applications

Fortunately, few problems surfaced. "The first software distribution went swimmingly," Chamberlain said. "Software distribution to PCs and Apple Macintosh clients is definitely the main strength of this product."

The only real problem Chamberlain encountered was during the setup phase, while installing the Systems Management Server agent software on Macintosh clients.

"Installing the agent on a Microsoft or Novell system is a piece a cake because those systems support logon scripts," he said. "But with the Macs, the user has to get involved or we have to go out to the machine and do it ourselves."

Knocking down barriers

In the past, Systems Management Server has been criticized for the difficult setup procedures required for distributing non-Microsoft applications — including software written in-house (NW, Jan. 23, page L1).

Specifically, users must create package definition files (PDF) for non-Microsoft applications before they can be distributed

application source directories on the server and install the application. In some cases, the Microsoft Test Program, MS Test, must be invoked to perform the actual installation.

"MS Test is imposing for a novice user," Chamberlain said. "We were able to bypass MS Test by using third-party products that provide a point-and-click interface for creating custom installers. Anyone can use them, even if you've never created an installation routine before."

Three such products are the Stuffit Installer Maker Version 2.02 from Aladdin Systems, Inc., the Wise Installation System 3.0 from Great Lakes Business Solutions, Inc. and WinInstall from OnDemand Software, Inc. These utilities go a long way toward simplifying the complex process of checking for hardware and software prerequisites on machines targeted for software distributions.

With WinInstall, for example, the administrator configures a computer with the databases, applications, AUTOEXEC.BAT files and even word processing templates that the user expects

to see. Then WinInstall takes a "snapshot" of the computer before and after, and builds a download file that can be used over and over to replace that exact configuration automatically. WinInstall effectively eliminates MS Test script writing typically required to implement software distribution using Systems Management Server.

Chamberlain said the client company would have been "pretty disappointed" with Systems Management Server's software distribution capabilities if it weren't for such third-party products.

ISV interest

The importance of Systems Management Server ISV partners has not been lost on Microsoft. Recently, the vendor hosted a two-day developers' conference for the purpose of encouraging ISVs to extend the functionality of Systems Management Server from within their own applications and to show how ISV applications can be managed.

More than 180 companies registered for the conference, according to Bruce Burns, technical evangelist for Microsoft's developer relations group.

Participants ranged from small start-up firms to large enterprise management software powerhouses such as Computer Associates International, Inc., Digital Equipment Corp., Tivoli Systems, Inc. and Hewlett-Packard Co.

Indeed, competition among ISVs shipping Systems Management Server add-ons already has started heating up. Tally Systems Corp. has rolled out Software Census, a Systems Management Server-ready version of its popular NetCensus PC-software inventory package. Software Census goes beyond Systems Management Server's inventory feature by adding the ability to recognize and classify literally thousands of PC-based applications.

"Our software recognition process lets the administrator ask a question such as, 'What word processing packages are really out there?' and get a factual answer, even if the software isn't being actively managed," said Anne Gunn, project leader for Software Census at Tally Systems.

"Administrators may want to unmanage or even get rid of older software that is still around," she said.

Software Census displays a screen showing the software manufacturer's name on the left, followed by the product brand name, version and language edition. The type of application — word processor or spreadsheet, for example — is shown on the right.

In contrast, Systems Management Server basically shows only local file names and the original file names, unsorted.

Software Census can be launched from Systems Management Server just by clicking on an icon that appears in the Properties list of the SMS Inventory screen. Software Census communicates with Systems Management Server by writing inventory files to a particular place in the Systems Management Server directory structure. The inventory records are written in Microsoft's Management Information File (MIF) format. Right now, this MIF structure varies slightly from the standard Desktop Management Task Force MIF specification.

Software Census can run as a Systems Management Server job or by using Tally Systems' scheduler utility to trigger collections on a regular basis. According to Gunn, many Systems Management Server sites use both methods.

Meter reading

Tally Systems also is developing a Systems Management Server interface to its Centameter software metering application. Centameter can help users control costs by monitoring how often a package is being used and whether it is being used locally or off a server.

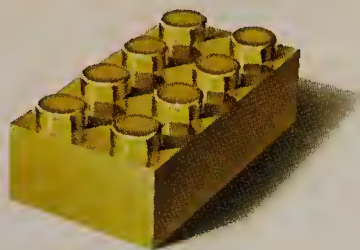
"Our software recognition process lets the administrator ask a question such as, 'What word processing packages are really out there?' and get a factual answer, even if the software isn't being actively managed."

In many cases, organizations could save thousands of dollars in license fees by purchasing one server license rather than multiple stand-alone copies of an application.

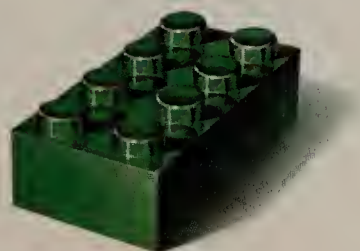
Gunn said software metering is a fundamental add-on for companies transitioning to a Systems Management Server environment, where software distributions are automated. "The administrator really needs to see if people are actually using the software that was distributed to them," she said. "Even if they can see it on the PC, they may not be using it."

Tally Systems plans to ship a version of Centameter supporting Systems Management Server by year-end. Its prime competitor

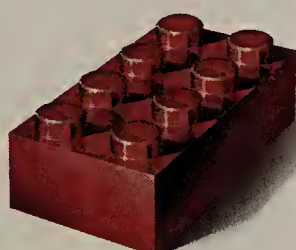
See ISV apps, page 8L



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There is a better way.



ISV apps

Continued from page 6L

tor, Express Systems, Inc. of Seattle, has been shipping a Systems Management Server-ready software metering product, Express Meter Enterprise Optimization Module (EOM), for more than six months.

"For most organizations, packaged applications can be procured much more cheaply when more users can share a pool of licenses," said Paul Davis, director of

sales and marketing at Express Systems. "Express Meter supports sophisticated optimization formulas for increasing usage and decreasing expenses."

Like Tally Systems' Software Census, Express Systems' EOM integrates with Systems Management Server by placing MIF-formatted data into the Systems Management Server directory. From there, the data is propagated through the directory tree to primary and secondary Systems Management Server sites. From any point in the Systems Management Server

hierarchy, the LAN administrator can grab license and usage data for that site and any other subordinate site.

"If you have a network with at least 50 or 100 end users, you can probably benefit from software license optimization," Davis said. "The money involved is serious. Let's say you have 250 copies of Microsoft Office, and you're planning to upgrade to Office '95. If you can take advantage of license pooling and buy 45 copies instead of 250 individual copies, you might save around \$20,000. For that

configuration, our software would cost you only several thousand dollars, so the savings can be dramatic."

Software metering and inventory are not the only functional areas into which ISVs are moving. Others include backup, hierarchical storage management, job scheduling, and even improved software distribution and deployment.

Microsoft is understandably pleased with all of this heightened activity among ISVs developing Systems Management Server applications. But the vendor is not satisfied to let third parties do all the work needed to transform Systems Management Server into a complete enterprise-wide workgroup management solution.

In July, Microsoft announced that it had acquired key technology from Network Managers (U.K.), Ltd., the supplier of the NMC Vision line of network management products. About 20 members of the Network Managers team have joined Microsoft to work on integrating the Windows NT-based NMC 4000 into Systems Management Server.

Microsoft is expected to deliver its initial network management solution in early 1996.

The NMC 4000 provides real-time, Simple Network Management Protocol-based monitoring of network devices, as well as topology mapping of LANs and internetworks with a variety of protocols, including NETBEUI, AppleTalk, IP and IPX, said Adam Taylor, product manager for Systems Management Server at Microsoft. "The forthcoming product will help administrators diagnose problems affecting the workgroup much faster and provide information to assist performance tuning and network configuration," he said.

In environments that are primarily Windows NT and Novell, the forthcoming product is expected to be capable of managing tens of thousands of nodes. "Our goal is to offer complete, consistent, end-to-end management of distributed workgroups across the enterprise," Taylor said.

Although Network Managers brings a wealth of expertise to Microsoft's development effort, there are still a number of critical functional areas that neither Systems Management Server nor NMC 4000 technology can address.

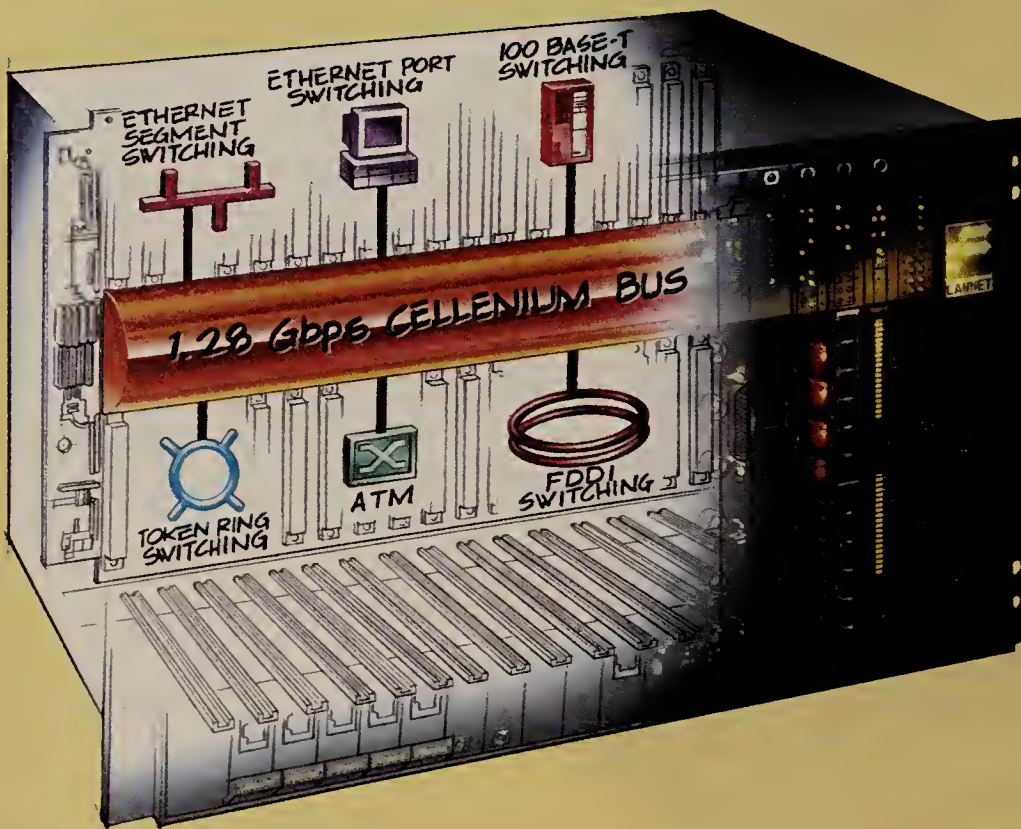
These features are expected to be handled by ISV applications (see graphic, page 6L). The NMC 4000 currently supports ISV applications written by 25 different vendors, and many of these ISVs are expected to extend their support to the forthcoming Microsoft network management product.

Huntington-Lee is principal analyst at Brandywine Network Associates in Cinnaminson, N.J. She can be reached via the Internet at 4463809@mcimail.com.

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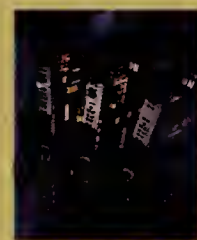
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Shareware

Continued from page 11

mand.com. Break suppresses it. On the other hand, it is aware when a break sequence should be passed to an application.

Break only uses about 500 bytes of RAM and can be enabled or disabled using the standard BREAK ON and BREAK OFF commands either from the command line or in batch files.

Break also supports a number of ad-

vanced features such as the ability to completely disable break sequences.

Another Computer Tyme utility, called Comspec, prevents users from shelling to DOS. It uses only about 10K bytes of RAM and unloads itself when your program ends.

The utility works by redirecting the Comspec environment variable to point to itself and thereby fails to load command.com. When the application exits, the Comspec environment variable is restored.

One of the problem areas of many networks is time management. It is not uncommon to find workstations on the same network in wide disagreement over the correct time. Indeed, the disagreement may even extend to the month and year.

Computer Tyme's NovSync is a small device driver (500 bytes) that keeps workstation and NetWare server clocks synchronized.

When you log on to a file server, the workstation is synchronized with the

server clock. But after that, the workstation's time may drift. The NovSync driver prevents this by reading the server time every 2 minutes and resetting the workstation time if there is a mismatch. If an application is reading the DOS clock, NovSync updates the time every 10 seconds.

NovSync staggers the workstation polling so it does not cause server overload.

NovSync also fixes the problems of workstations that do not roll over to the next day at midnight. The continual synchronization ensures that if you change the time on the file server, the workstation's time will change to match. It also keeps users from tampering with the date.

NovSync can be disabled and reenabled, and offers a function that will cause the workstation to reboot if the server fails to respond to a request for time. NovSync also hooks to the critical error interrupt and causes a reboot on critical errors.

Let the games...end

One thing that drives many managers (both network and otherwise) into paroxysms is game playing. Games can result in a significant source of lost staff time and can have profound implications for net integrity and performance when loaded through unauthorized installations.

DVD Software, Inc. offers a new shareware utility, called Ungame, designed to identify games, enter their names and location in a log file and delete them.

Ungame can examine any given logical drive and path, and will search all subdirectories below the path. Operation options are search, search and log (so that action can be taken later), or search and clean (that is, delete the suspected game files).

Ungame identifies files containing games by their signatures — characteristic patterns of data in each game program file. This ensures that renaming files will not hide them.

While DVD suggests that the clean option be used with caution to avoid misidentifying and deleting files, we found no mistakes when we ran Ungame against several thousand different application files. Nonetheless, the company's advice is probably worth heeding.

The shareware trial version will identify 100 different games. The full licensed version can detect 2,280 games.

When Ungame is run, it presents a menu allowing you to specify the search path, set the log file and invoke the different run types. A number of command-line switches can be used to control Ungame's operation. If the program is to be run from a user's AUTOEXEC.BAT batch file, a stealth mode lets it operate without a display. Combine this with Computer Tyme's Break utility and only the most expert users will be able to prevent detection of unauthorized games.

DVD Software, Inc. offers a new shareware utility, called Ungame, designed to identify games, enter their names and locations in a log file and delete them.

See Shareware, page 12L

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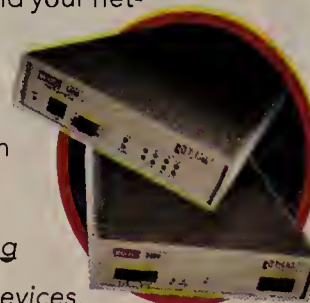
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Simware

Continued from page 1L

directories.

The process requires use of at least one clean, or control, server, from which network managers can conduct a rolling migration. That enables users to ensure each server update is complete before continuing.

Modeling and importing data are done off-line, so managers can check their work on the control server before activating the

new network operating system.

Managers can also preview the file system in the new environment before moving all data, Fedorko said. This is particularly important when moving to the new NetWare Directory Services (NDS) model, he added.

With REXXWARE Migration Toolkit, "you build a virtual NDS, which creates very little network traffic," said John Drane, network engineer at Teleflex Information Systems, the information systems organization for Vanguard Cellular

Systems, Inc. of Greensboro, N.C.

As an early tester of the product, Drane also found that because most of the work is done off-line, some inconsistencies can be caught in advance, and any impact on network users is minimized.

Simware's software eased the hassles and cut upgrading time for Sema Group, a London consulting firm.

For example, Migration Toolkit automatically reconciled the different formats for user names in NetWare 3.X and 4.X, resulting in a big time savings for

a large network.

Migration Toolkit also lets net managers clean up their configurations while upgrading. For example, it flags duplicate objects and merges them into a single NDS object. It also lets managers migrate NetWare selectively and in parts, which is especially helpful for large networks.

Novell provides some migration tools but also endorses Simware's more thorough toolkit.

REXXWARE Migration Toolkit costs \$795 per server, with volume discounts available. Simware is also joining with NetFrame Systems, Inc. for joint promotion of its software and NetFrame servers.

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Shareware

Continued from page 10L

Most companies thrive on memos, but the problem is that they take time to distribute and do not provide a forum for public discussion.

Your organization might have tried to use electronic mail for this purpose and found it to be only marginally successful. Or, it might have been tempted to move to one of the groupware systems only to be put off by the cost and learning curve involved.

If you use NetWare, Extensions Software Corp.'s X-Forum4 Network Message Forum System for Windows is worth checking out.

This tool is a Windows application that allows network users to read threaded messages; that is, messages linked in the sequence they were posted.

Simple to set up, the X-Forum4 system allows as many as 99 message forums to be configured as read-only or interactive. User access to forums can be controlled by group membership, and automatic purging of messages at administrator-specified intervals can be enabled. The application scans for new messages at regular intervals and updates the user's view dynamically. Messages can be created, edited, printed and saved to the clipboard.

X-Forum4 is a good solution for organizations looking for an effective network message forum solution that is not going to be expensive and complex to set up.

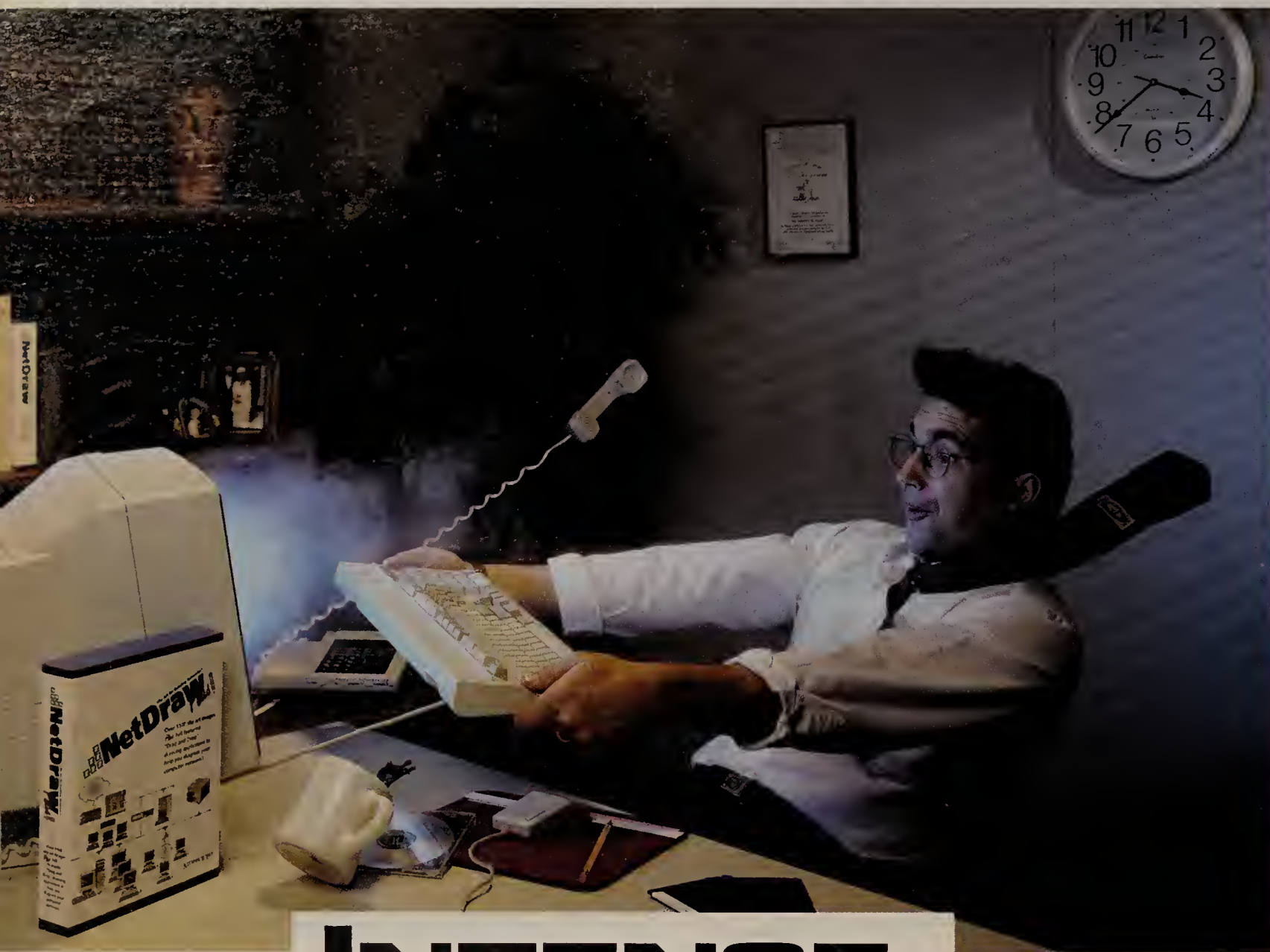
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The way of the ware

This article briefly looks at a tiny fraction of the LAN tools available as shareware. Shareware network tools and applications are available for just about any service or task required.

While the quality is variable, the value and sophistication of many shareware applications make them well worth considering before you settle on a product from the regular commercial market.

Gibbs is a consultant and writer in Ventura, Calif. He can be reached at (800) 622-1108, Ext. 504, or via the Internet at mgibbs@gibbs.com.



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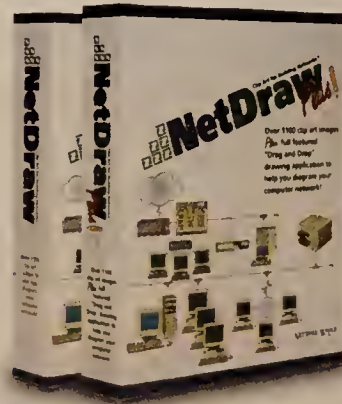
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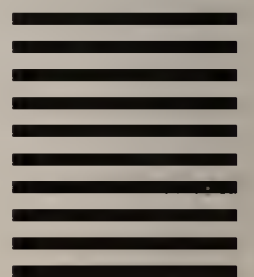
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Report cites growth in ISDN and ATM use for remote LAN access

By Joanne Cummings

Framingham, Mass.

Fortune 1,000 corporations are investing heavily in ISDN and Asynchronous Transfer Mode technology as a way to boost remote LAN access performance, according to a recent report issued by Focus Data, Inc.

For the report, titled "Remote LAN Access '95," the research firm surveyed 200 Fortune 1,000 net executives involved in the purchase and implementation of remote LAN access products and services. In addition to the emphasis on ISDN and ATM, Focus Data found that the majority of firms are expecting to support greater numbers of remote LAN access users during the next year and electronic mail is the primary application supported.

"These findings underscore the fact that users are moving out of the early trial phase with remote LAN access and are beginning to support day-to-day real-world applications," said Mona Dabbon, president of Focus Data, located here.

According to the report, almost one-third of today's remote LAN access users connect to the network at speeds of 9.6K

bit/sec or less. Just 15% said they use digital links of 56K or 64K bit/sec to support remote LAN access applications.

In a year, however, the number of users with 9.6K bit/sec links will drop by almost half, to just 17%. By comparison, the number of users who have digital links of 56K

or 64K bit/sec will jump to 21%, according to the study.

The use of ISDN also is expected to grow dramatically during the next year. Currently, 70% of remote LAN access users have analog dial-up links; only 11% use ISDN. Within a year, however, those using analog dial-up links will fall to 56%, while the number of users with ISDN will jump to 25%, the report says.

The types of LANs accessed also are expected to change. Now, Ethernet and token ring are the primary LAN types that

users need to access, but a greater number of users said they will need to access ATM LANs during the coming year. Only 3% said they currently use ATM LANs, but that number will grow by 200% within the next year, with as many as 9% planning to have ATM LANs by then.

For more information or for a copy of the report, contact Focus Data at (508) 626-2556.

Cummings is a freelance writer in Marlborough, Mass.

Biscom announces fax translation server

By Joanne Cummings

Chelmsford, Mass.

Biscom, Inc. has made available a fax translation server that lets users send electronic mail messages and attachments to E-mail and facsimile recipients at the same time.

The software, called Faxcom Translation Server (FTS), makes sending messages via fax as easy as sending a traditional E-mail message, the firm said. It also lets users send documents in their native application formats via fax.

FTS can be used on any computer running Microsoft Corp.'s Windows 3.1 or later and supports all major E-mail programs.

The software lets users send messages to fax recipients as if they were on the E-mail system, but the electronic address for fax recipients is continually polled by Biscom's Faxcom fax server.

The server forwards messages to FTS for translation. FTS accepts the messages, which may be appended with files in their native application format, and converts those messages and files into images. It then returns the image files to the fax server, which faxes them to the designated recipients.

FTS Version 1.0 can perform authentic file translations of Microsoft Word 6.X, Excel 5.X and PowerPoint 4.X, as well as 1-2-3 for Windows 4.X and WordPerfect for Windows 6.X documents, Biscom said.

FTS Version 1.0 costs \$1,995 for software only, and \$3,995 for software plus a PC.

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NET RESULTS

Just what is up Cabletron's sleeve?

The network industry is like the weather in New England: If you wait long enough, it changes dramatically.

First, 3Com Corp. announces its intent to acquire Chipcom Corp. in a stock deal worth nearly \$800 million. The press conference is filled with smiles, talk of corporate synergies and visions of early retirement by the Chipcom faithful.

But wait. What's that sound from the north? Why, it's the haunting laugh of Cabletron Systems, Inc. head honcho Bob Levine, who announces the day after the 3Com-Chipcom lovefest that Cabletron may try to purchase in excess of 50% of Chipcom's stock, effectively mucking up 3Com's attempted tryst.

Hostile takeovers in the network industry are rare, but let's be honest: If you had to pick one network company that would play — nay, relish — the role of spoiler, you'd pick Cabletron, right?

We're talking about a company that takes great pride in its Bad Boys of Networking moniker.

The 3Com-Chipcom deal has many different implications, but one of the most interesting is the increased pressure the agreement puts on Cabletron, which has not acquired one company or technology in a time when its rivals are acting like it's dollar day at the local flea market.

Cabletron has taken the internally developed route for almost all the key technologies, grudgingly doing partnerships in some areas, but only until it could develop something on its own. The third and fourth quarters of this year will be crucial ones for Cabletron because it has a number of key deliverables slated, including its Secure Fast Switching and portions of its Virtual Network Services.

When the 3Com move was announced, Cabletron had three options.

It could have kept quiet and gone on with business as usual. But when's the last time Cabletron did anything quietly?

It could have taken the defensive route by reacting to the announcement with just a press release. Right. Cabletron taking a defensive stance is about as likely as Newt Gingrich and Rush Limbaugh jointly keynoting the next National Organization for Women fund-raiser.

So in the best tradition of CEO Levine, Cabletron got aggressive and threw a wrench into the works with a little announcement of its own.

Does Cabletron really want to buy Chipcom? No. There is really nothing to gain by that move, other than to eliminate a high-end hub rival and maybe gain access to some one-tier distribution channels. There's certainly nothing in the Chipcom product line that Cabletron could leverage since it already has a corresponding product at almost every turn.

It's a good guess that Levine and Cabletron are simply trying to make things a bit sticky for 3Com by jacking up the purchase price and forcing 3Com CEO Eric Benhamou to squirm over the threat.

Remember, Cabletron has only filed with the Federal Trade Commission to buy \$15 million of Chipcom stock and has

only expressed interest in purchasing in excess of 50% of the outstanding shares. Without doing anything else, Levine has probably accomplished his goals.

The Cabletron announcement shifted the focus from how Cabletron was going to be affected by this proposed merger and threw the spotlight squarely back on 3Com and Benhamou, who must now figure out how to respond.

If the 3Com deal goes through, it will likely be more expensive. Levine then goes home, content that he tweaked Ben-

hamou and depleted the 3Com coffers a bit. If Cabletron's move puts the asking price out of 3Com's comfort zone and the deal falls through, then Levine makes the covers of *Forbes*, *Fortune* and *The Wall Street Journal*, and celebrates by giving everyone at Cabletron an extra personal day.

MacAskill is a senior research analyst and Le Baron is a research director in Gartner Group, Inc.'s Network Computing Infrastructure group. They can be reached at (203) 316-1111 or at inquiry@gartner.com.

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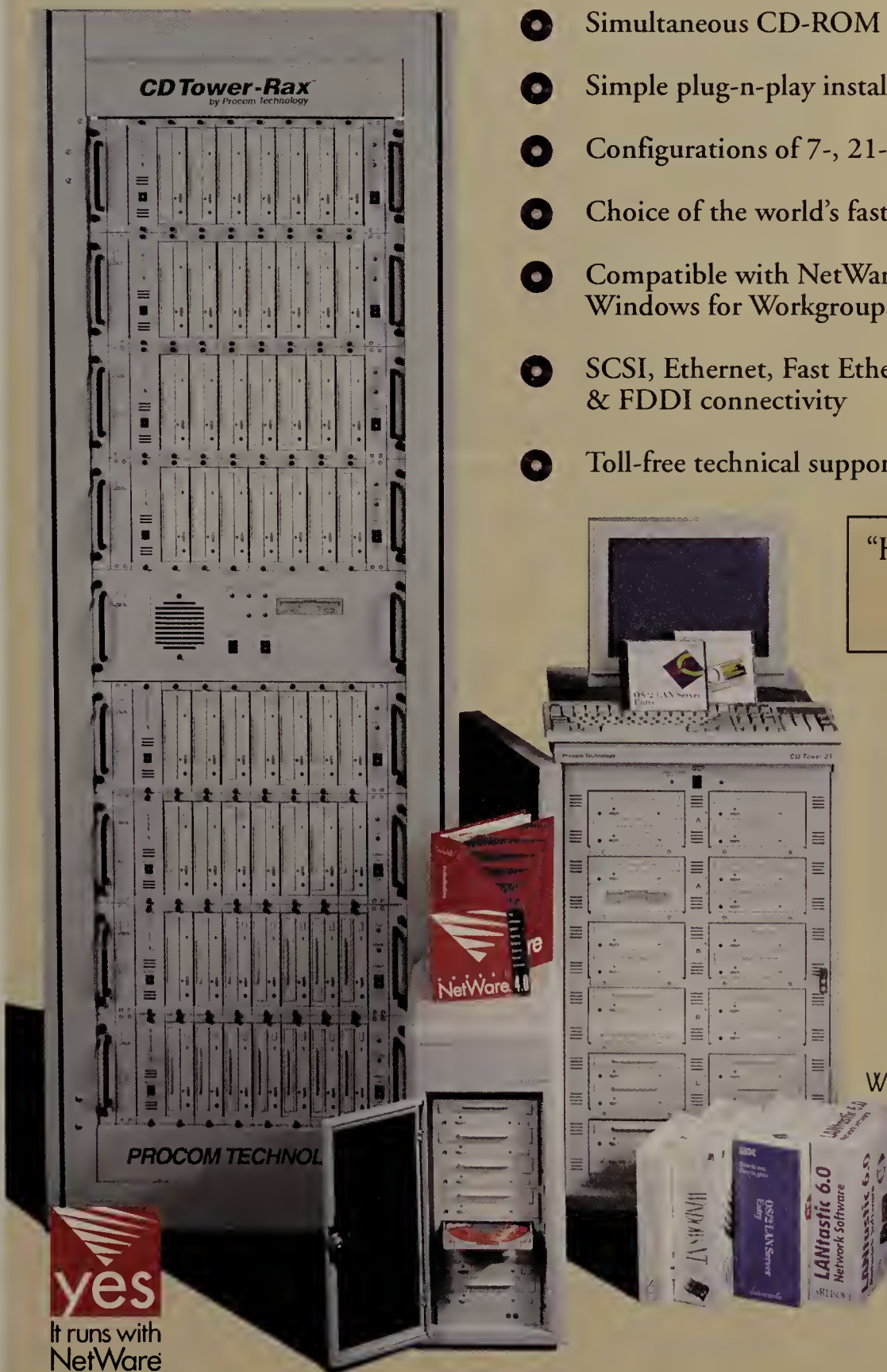
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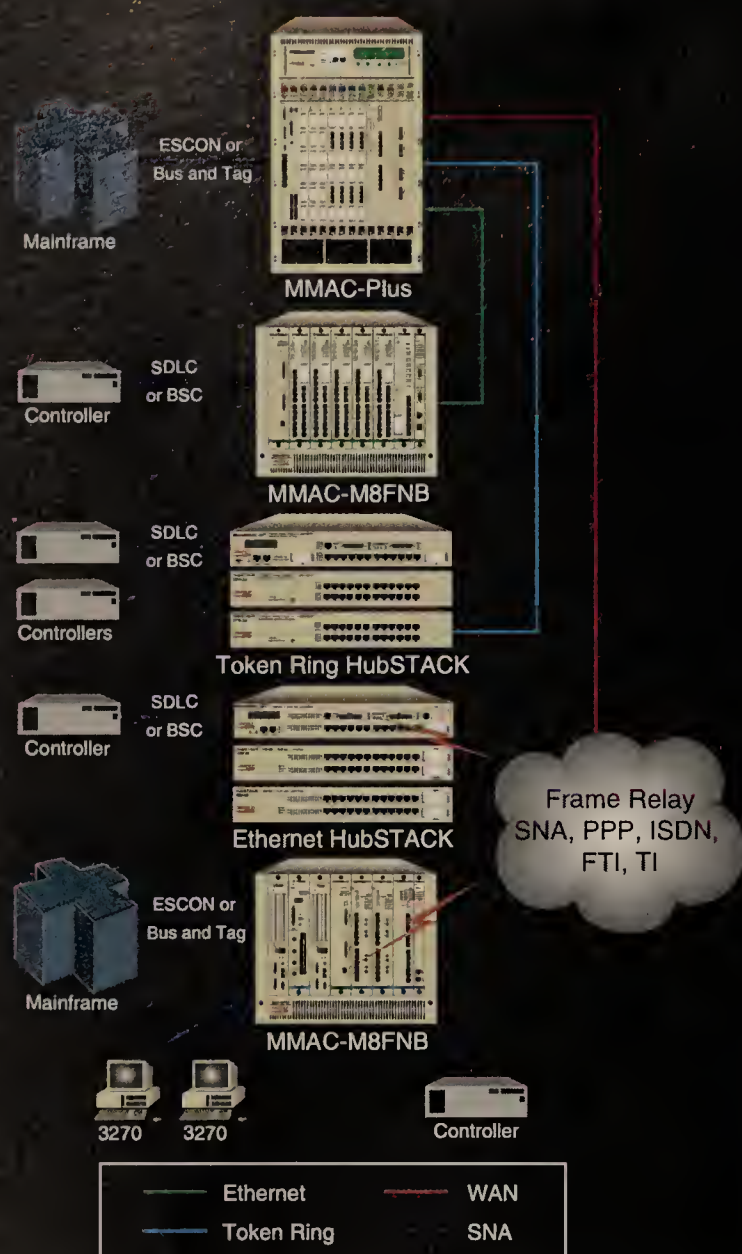
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Briefs

■ **Xing Technology Corp.** is shipping new software that delivers live and on-demand audio and video over the Internet.

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The server software is priced at \$3,500 for a T-1 or lower Internet connection, or \$6,500 for a higher capacity Internet connection.

Xing: (805) 473-0145.

■ **Starlight Networks, Inc.** and **Sun Microsystems, Inc.** have teamed to introduce **Training-On-Demand (TOD)**, a video-based training product.

TOD includes a video server based on Starlight's StarWorks multimedia networking software and Sun's scalable processor architecture (SPARC)-based servers and video courses.

Pricing depends on the number of courses and client stations selected.

For 200 clients with five courses, for example, the cost is \$300 to \$500 per station, depending on the courses chosen.

Starlight: (415) 967-2774.

■ **Oakbrook Terrace, Ill.-based Platinum Technology, Inc.** is shipping **Platinum ProReports 1.4**, a reporting tool that lets users and database administrators perform queries across multiple databases.

The new version lets users manipulate data through an improved clipboard and now supports a broader range of SQL statements.

ProReports runs on Windows and works with IBM's DB2, Informix Software, Inc.'s OnLine, Oracle Corp.'s Oracle 7 and Sybase, Inc.'s System 10 databases. Available now, ProReports 1.4 is priced at \$695.

Platinum: (708) 620-5000.

Unilever simplifies directory updating

By Annmarie Timmins
London

With 50,000 electronic mail users changing offices and telephone extensions worldwide, it's common for Unilever N.V. to make as many as 500 changes a day to its electronic directory, which holds names, E-mail addresses and phone numbers for Unilever employees.

It is also cumbersome to make those changes. Unilever was using Sprint Corp.'s E-mail service, and relied on Sprint to manage and maintain its global directory. Some updates took a

tant to [Unilever]," Booker said. "While it might seem that one or two names out of sync is a small problem, the wrong [information] could actually create significant issues."

As Unilever has acquired firms, it has also inherited various E-mail systems, said Martin Armitage, head of technology for Unilever in London. Most employees are using Lotus Development Corp.'s cc:Mail, but there are large pockets using Hewlett-Packard Co.'s HP OpenMail and Digital Equipment Corp.'s All-in-1 mail systems.

Unilever continues to use Sprint to connect its dissimilar mail systems, routing messages via the Sprint network to diverse destinations. However, Booker said Unilever is considering installing its own mail backbone but has not said how it will proceed.

Before MailHub

Before the company moved to MailHub, its E-mail administrators were responsible for getting directory updates to Sprint. It was a process that Booker described as complex, difficult and not very accurate.

Booker also acknowledged that the system could be expensive because each mail post office maintained its own connection to Sprint.

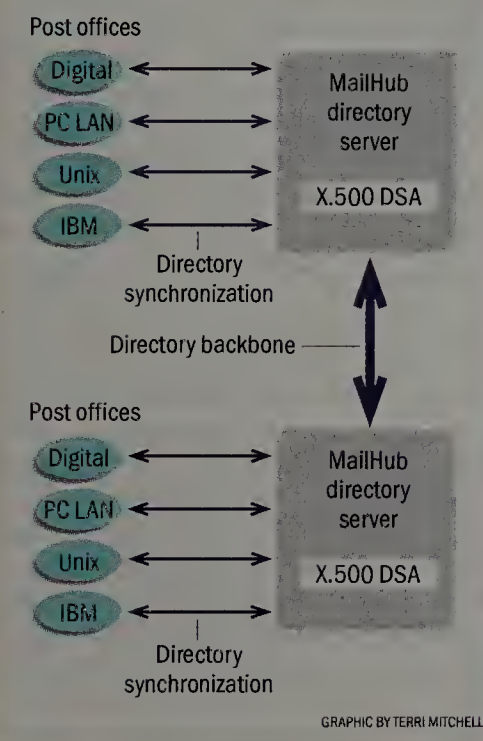
Unilever's X.500-based MailHubs connect to individual mail servers through mail gateways. Individual directories are synchronized through the master X.500 directory on each mail server.

Because the new directory service is standards based, Unilever will be able to add additional information to its clients' directory listings, including which product teams employees work on and their pager numbers, Booker said.

"The quality of the directory service has improved," Armitage said. And that means "fewer undelivered E-mails and reduced operational costs." ■

THE MAILHUB CONNECTION

The MailHub messaging backbone supports a variety of message standards and can connect diverse E-mail systems to create an enterprise messaging network.



GRAPHIC BY TERRI MITCHELL

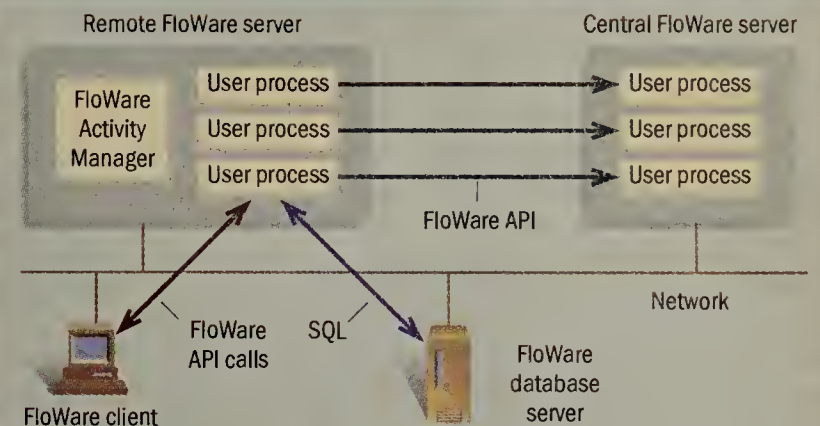
week to appear because they had to be messaged electronically or mailed on tapes to Sprint.

Unilever is now making those changes more quickly and accurately with its own internal directory service using Control Data Systems, Inc.'s messaging integration product, MailHub.

According to Robert Booker, a systems integrator consultant with Control Data in Dayton, Ohio, updating via Sprint meant that changes were made too slowly and sometimes with mistakes.

"Information and the ability to communicate is very impor-

Simplifying enterprise workflow



A user logs on to a local server, which accesses a workflow map from a central server that handles centralized administration chores and maintains workflow maps describing how work is routed across an organization. Logon and user information is maintained in a database server, which may be local or remote.

GRAPHIC BY TERRI MITCHELL

Recognition's workflow system runs across distributed servers

New FloWare 3.0 software also eases administrative chores.

By Barb Cole
Dallas

Recognition International, Inc. last week announced a new version of its workflow management software that supports large numbers of users by splitting sizable applications among multiple servers and providing tools for centrally managing applications.

FloWare 3.0 is an integrated set of products for building workflow applications. It includes a tool for designing workflow maps, which define how work is routed throughout an organization, as well as software that tracks workflow processes.

Applications built using previous versions of FloWare can be divided among several servers, but each server is required to run a separate copy of the FloWare workflow maps. That means that administration of the servers has to be handled locally. With Version 3.0, multiple servers can share a single workflow map that resides on a central server, allowing those servers to be managed from a central point.

Mark Kritlow, director of marketing at Recognition, said FloWare's ability to run across servers is a real plus for its users, many of which are running 1,000-user workflow applications and need to distribute the workload to improve and support branch offices and remote workers. "Very few of our customers are running fewer than a couple hundred seats," he said.

Analysts agreed that distributed capabilities are likely to become increasingly important as workflow systems spread across the enterprise.

"The ability to go beyond single server domains seems to be the next battleground in production workflow," said Bruce Silver, principal of Bruce Silver and Associates, a market research firm. See Recognition, page 30

Object software

Getting OpenDoc and OLE parts to work together

By John Cox
Provo, Utah

When Novell, Inc. ships the beta version of the OpenDoc software developers' kit for Windows in the fall, the tool set will include

FOLLOW UP a software layer called ComponentGlue that is designed to let OpenDoc components work smoothly with OLE 2 components.

If ComponentGlue is successful, it will eventually bridge the gap that currently separates OLE 2 applications on Microsoft Corp. desktop operating systems from applications based on a different object model and that run

See OpenDoc, OLE, page 30

Windows database makes it easier to find information across networks

By John Cox
Woburn, Mass.

A new text database system for Microsoft Windows combines the high-speed search capabilities of text retrieval tools with relational database-style features.

DB/TextWorks from Inmagic, Inc. lets users build large, shareable text databases that can be searched quickly using fields and key words. At the same time, the relational-like features let users pull together data from text databases across a network with a single query.

In contrast, relational databases handle text poorly, and many text retrieval products do not have a database optimized for storing text, according to Phillip Green, president and chief executive officer of

Inmagic, based here.

The database can be set up on a single machine or a network server. For any electronic document, DB/TextWorks lets users designate as many as 250 document fields, such as author, date, recipient, subject and the text of the document. The fields can be of any length, unlike relational database fields, which are fixed.

Fields are indexed, which makes it possible to do fast searches, even of large databases. DB/TextWorks can link separate text databases together for tasks such as searching, sorting and displaying.

DB/TextWorks runs on all Microsoft Corp. Windows-supported LAN-based file servers and networks. The product is available now and is priced at \$795 for a single-user license. LAN pricing ranges from \$2,900 for a five-user license to \$24,900 for 100 concurrent users. No run-time fees are charged.

©Inmagic: (617) 938-4442.

Recognition

Continued from page 29

firm in Weston, Mass.

FloWare 3.0 features a revamped version of MapBuilder, the client-based software that is used to build workflow maps. That tool now includes an API to let developers integrate information from third-party analysis and business process reengineering tools. MapBuilder also has enhanced drawing features, and more viewing and navigation options, Kritlow said.

Linking to tools

FloWare also has new links to popular development tools like Microsoft Corp.'s Visual Basic, Powersoft Corp.'s PowerBuilder and Oracle Corp.'s Developer 2000, so developers may build workflow applications using these tools.

On the administrative side, FloWare 3.0 supports the creation of user groups, which enable administrators to set up access rights for groups rather than individual users — a time-saving tool.

FloWare runs on DOS, Windows, OS/2, Macintosh, and Unix clients and Sun Microsystems, Inc.'s Solaris servers. Ports to Hewlett-Packard Co. and IBM Unix systems are due in the fall. FloWare works with Informix Software, Inc.'s OnLine databases, and a version for Oracle Corp.'s Oracle 7 is planned.

Available now, it costs \$300 to \$2,500 per concurrent user, with a typical installation of 500 users costing about \$450 per seat.

©Recognition: (214) 579-6000.

SHARED LOGIC

Preparing for client/server mail

For networking people, August is a time to relax, a chance to enjoy the fact that many users are on vacation. We can make a dent in the stack of periodicals and press releases that's probably about 2 to 3 feet high and give the ole net fire extinguisher a rest. This is good because all work and no play makes Mikey a dull boy.

All this does not mean we should go into hibernation. Instead, summer is the time to catch up on an often overlooked but very important function: planning. We spend too much time fighting fires to worry about tomorrow, let alone next year. You should, however, stake out a little time to worry, especially about E-mail. In fact, I'd say that the inevitable appearance of new client/server messaging platforms from Lotus, Microsoft and Novell during the next six to eight months doesn't leave much planning time to waste.

On the other hand, if anything is clear from my frequent travels, it's that nothing really happens quickly in a Fortune 1,000 IT shop. Migrations to any new technology are usually painfully slow, as it takes a while to turn around a big ship. We expect it will take 18 to 24 months for most shops to eradicate the dreaded shared file systems.

No doubt many have been playing with early beta code from the vendors because it's fun, but has anyone even thought about rollout yet?

Here's some food for thought:

■ **Message transport agent (MTA)** — In an amazingly consistent fashion, all three top-tier vendors are basing migration to the new platforms on the new multifunctional MTA. Whether yours is Microsoft Exchange, Notes Release 4 or GroupWise XTD, you'll be getting a new MTA that will initially back-end existing shared file systems. Bye-bye, cc:Mail router, and good riddance! Of course, this

MTA function is coresident with the next-generation post office, giving you the ability to phase in the migration of mailboxes.

■ **Migration tools** — Bundled with each new platform will be a set of spiffy migration tools to ease actual movement of messages, folders, profiles and rules from the old post office to the new. Additionally, these tools likely will be a key attack component, enabling migration from multiple platforms (for example, Microsoft Mail to Notes Release 4).

This is especially true for host systems, as Microsoft is planning to make tools for pulling information out of OfficeVision, All-In-1 and Memo.

■ **Training** — Don't forget your users (smart people) will need to learn the new features inherent to the new platform.

Furthermore, don't forget the application developers.

Many Notes shops already have business-critical collaborative applications running, yet Notes Release 4 is a radical departure in terms of both interface and functionality.

You're going to need to fully understand the new system and rearchitect existing applications in order to get full impact.

Sorry to ruin the rest of your summer, but you don't want to be caught with your pants down when the next generation appears. Just think, planning's not all bad, especially compared with reconstituting a corrupt post office the day before a huge deadline, right?

Rothman is program director of META Group, Inc.'s Global Networking Strategies service in Reston, Va. Feedback is welcome by E-mail at miker@metagroup.com or by phone at (800) 622-1108, Ext. 521. Rothman's column alternates in this space with that of Marc Myers, president of Client/Server Connection, Ltd.



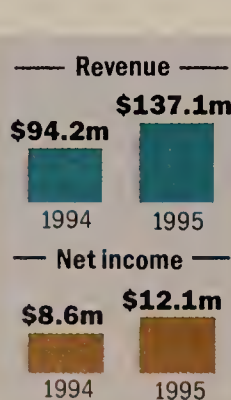
Mike Rothman

BusinessBriefs

InSync Software Corp. of Ronkonkoma, N.Y., last month appointed a new president and announced that it has received a \$3 million infusion of venture capital. InSync, which markets the application partitioning tool Passport, named Richard Ramsdell to the post of president.

Ramsdell was previously president of the application development systems division of CGI Systems, a subsidiary of IBM. Alan Tonnesen, who before was president and chairman of InSync, will remain chairman.

Stamford, Conn.-based **Hyperion Software Corp.** recently reported that revenue for the year ending June 30 rose 45%, from \$94.2 million in 1994 to \$137.1 million. Net income for the year rose 41%, from \$8.6 million in 1994 to



\$12.1 million. More than a third of the revenue came from sales outside the U.S. Hyperion sells a suite of Microsoft Corp. Win-

dows client/server applications for corporate financial and accounting data, and for budgeting and financial planning.

OpenDoc, OLE

Continued from page 29

on other platforms.

The first OpenDoc commercial release, which is due around year-end, will support interaction among OpenDoc and OLE 2 components on a single PC. Release 2, scheduled for later in 1996, will let components interact over a net, according to Chris Andrews, OpenDoc project lead at Novell.

ComponentGlue is being ported to the Macintosh, which will allow OpenDoc-OLE interactions between Macintosh and Windows PCs.

OpenDoc, developed by Component Integration Laboratories, Inc., (CI Labs) combines an API, libraries and utilities based on IBM's System Object Model. With OpenDoc, software developers can create software components, called parts, that can be shared and reassembled into larger applications. Novell, which helps fund CI Labs along with IBM, Apple Computer, Inc. and others, is implementing

OpenDoc on the 32-bit Windows NT and Windows 95.

The ComponentGlue layer has four elements, Andrews said. The OLEWrapper lets an OpenDoc part be embedded inside an OLE "container," which is an application such as Microsoft Word or Microsoft Excel. To that application, the OpenDoc part looks and acts like any other OLE 2-compatible software.

The second element, called OLEPart, lets an OpenDoc part automatically contain an OLE application, such as an Excel spreadsheet. In this case, OpenDoc sees the OLE software as if it were another OpenDoc part.

The OLE Automation Interface in effect translates between the OpenDoc scripting environment and the OLE equivalent, called OLE Automation. Scripting is a way to give programmers control of the components.

The interface is still under development, although Novell has demonstrated this script-level interoperability, Andrews said. Finally, ComponentGlue supports special OLE compo-

nents called OLE Controls, or OCXs, which are relatively small components that can be controlled via a script interface.

©Novell: (800) 638-9273.

OPENDOC WILL DO WINDOWS

The problem

Desktop applications using Microsoft's OLE 2 object technology can work with one another but not with applications that use a different object model, such as the OpenDoc component software environment, and that run on non-Microsoft operating systems.

OpenDoc's solution

A software layer called ComponentGlue, developed by Novell. With ComponentGlue:

- ▶ OpenDoc parts can be incorporated inside an OLE 2 application.
- ▶ OLE 2 applications can be included within an OpenDoc application.
- ▶ OpenDoc scripts, which control a component's behavior, can drive OLE 2 components; OLE Automation scripts can drive OpenDoc parts.
- ▶ Every OpenDoc part is an OLE Control (OCX), which can be used by any OCX tool, such as Microsoft Access.

Electronic Commerce

Covering: Tools and Techniques for Interenterprise Networking
and Doing Business On-Line

Briefs

■ **Open Market, Inc.** has started shipping WebReporter, software that lets users keep track of visitors accessing specific URLs on their **World-Wide Web** site.

Priced at \$495, WebReporter generates reports from log files stored in the Common Log Format recorded by most Web servers. A free evaluation copy can be accessed at <http://www.open-market.com/products/web-reporter/>.

■ Under the banner of its "Healthcare Architecture," IBM announced it will work



with medical technology providers to develop **net-worked health**

care and accounting systems to link hospitals, insurance providers and pharmacies.

IBM's partners are Emtex Health Care Systems, Inc., Healthcare Communications, Inc., Kodak Health Imaging Systems, Inc., Siemens Medical Engineering Group and Sunquest Information Systems, Inc. IBM will work with its first customer, BJC Health Systems of St. Louis, to link clinic management systems at 16 hospitals.

■ **Information Dimensions, Inc.** said it has integrated its BAISplus document database and information **management system** with Netscape Communications Corp.'s Netscape servers, which will allow users to more easily link their databases to Netscape servers.

■ **Scrambler Technologies, Inc.** is shipping a \$69.95 **data encryption program** called Scrambler for Windows that lets users encrypt text, graphic files and engineering drawings for transmission over the Internet or across internal electronic mail systems.

Mobil Oil Corp. is said to be among the first users of the software.

Antiporn crusaders may slow electronic commerce

By Ellen Messmer
Washington, D.C.

Legislation under consideration in Congress would make cyberspace a safer playground for children, but it could have a chilling effect on electronic commerce.

The Communications Decency Act and the Protection of Children from Computer Pornography Act of 1995 would impose stiff fines and jail terms not only for cyberporn, but also for allowing questionable material to fall into the hands of kids.

The bills pertain not only to hard-core porn, but also to any material deemed violent or suggestive, or containing language inappropriate for children. They criminalize not just the originators of the material, but the service providers that transmit it.

If Congress passes the legislation, attempts to market many publications and movies via on-line services could be cut short, and businesses seeking to share data via E-mail over the Internet and on-line services would run the risk of employees violating the content regulations.

In testimony before the Senate Judiciary Committee, Professor Michael Hart, director of electronic texts at Illinois Benedictine College, said the indecency restrictions are so broad that they would affect literary works as well as smut.

The college, which makes books available on the Internet, might be forced to remove some of Shakespeare's plays, *The Catcher in the Rye*, *Lady Chatterley's Lover* and *Alice in Wonderland* because these works have been called indecent by critics in the past, according to Hart.

Publishers and on-line service providers, including America Online, Inc. and CompuServe, Inc., testified here at recent congressional hearings on cyberporn that the severity of the proposed laws will crush growth in the on-line industry and create a censorship atmosphere to avoid liability.

"This industry should not be cast in the role of national censor, determining what information may be fit for children but subject to criminal liability if it guesses incorrectly," Bill Burrington, assistant general coun-

sel at America Online, told the Senate Judiciary Committee.

More surprisingly, law enforcement officials who would have to enforce these new federal rules oppose the bills, deeming them unnecessary to catch on-line stalkers and pedophiles.

The Communications Decency Act "is unconstitutional, and it may not be practical to enforce," said Lee Hollander, Florida assistant states attorney, in testimony before the House panel chaired by Rep. Constance Morella (R-Md.) recently.

New Jersey state trooper Mike

Geraghty told the congressional panel that the cybercops in his department do not need new laws to go after pedophiles operating bulletin boards through which they sell kiddie porn.

The officers said criminal laws today let them do their jobs as cybercops. Also, Hollander said his Florida sleuths recently broke up an on-line ring that charged subscribers \$1,500 per month to match up older men with boys.

But at the Senate Judiciary hearing, parents and teens said hard-core porn is too easy for children to access from Web sites. Both supporters and opponents of the cyber-

porn bills agree on that issue.

Tony Rutkowski, executive director of the Internet Society, said the computer geeks who created the 'Net are throwing their efforts into developing a technical fix that would offer a way to keep children from viewing inappropriate materials via the 'Net.

Morella said Congress needs to understand industry efforts to tackle the problem before mandating government controls. She gave SurfWatch, Inc. a chance to demo its software at the House hearing. The software is designed to let parents block their children's access to cyberporn Internet sites. ■



Morella says Congress needs to understand industry efforts to tackle the porn problem.

BUSINESS SPACE

Of Web browsers, commerce and time

I am bushed! I'm sitting with a glass of Chateau Nameless chardonnay — a heavy little vintage more suitable for hand-to-hand combat — at 30,000 feet, having flown out of Denver's new, and quite amazing, airport.

I've just completed the last stop on my 13-city *Network World* seminar tour Capitalizing on the Web, and I'm going home for a few weeks off.

Anyway, given that I've been talking about the Web for the last geological epoch (or so it seems), the future of Web browsers has been on my mind of late.

This is what you might call a hot topic. In the time that I've been on the road, it seems like a whole new generation of Web technology has been released.

Today's browsers range from the excellent (Netscape) to the atrocious (names withheld to protect the guilty). And when you survey today's market, you find some interesting things.

One of those items is that there are still Web browsers that can't do simple tasks such as display transparent GIF images. Again, I won't name names, but it seems incredible that a major vendor whose name starts with N (and it ain't Netscape) has missed this obvious issue.

Another interesting thing is the inconsistency of HyperText Mark-up Language (HTML) interpretations. Just look at the ways different browsers interpret markup tags: Some browsers put blank lines before and after a heading, while others don't. The same applies to horizontal rules (those lines across the page) and to lists. Some browsers indent lists, some don't. And so on.

In short, HTML is a quasi-standard and damn irritating if you are trying to create a specific image for your Web-based business.

And while we're talking about irritating, how about those tags such as "EMphasis" and

"STRONG"? Read almost any book on HTML and it'll say something like "STRONG is to be preferred over BOLD."

Preferred? By whom? If I want bold text, I'll use BOLD, not whatever deranged interpretation someone else might think should be used for STRONG. This kind of thinking betrays the academic roots of HTML and needs to be dumped as soon as possible.

Unless you are an academic, the purpose of being on the Web is, ultimately, to sell.

So my question is, why don't we create a real standard for HTML that addresses these and other issues and doesn't assume that it knows better than us what we want to display?

Of course, there is a small problem. HTML standards

may be a nonissue with the HTML Version 2 standard still being argued over; the HTML 3 standard under construction and potentially all of HTML being abandoned in the next couple of years in favor of Adobe's Portable Document Format, Java programs and Virtual Reality Mark-up Language.

As I see it, the rate of evolution of the Web makes the rather plodding, academic approach of the W3 Consortium, which is developing new versions of HTML, a complete waste of time. By the time it finishes with the religious disputes over dotting i's and crossing t's, the commercial world will be several generations ahead.

But given the dynamism of the Web industry, there's hope for those of us who know exactly what we want to display on the Web. All we have to do is wait a few weeks.

Next week: My Ideal Browser

Gibbs is a writer and consultant based in Ventura, Calif. Drop him a line at mgibbs@gibbs.com or call him at (800) 622-1108, Ext. 504.



Mark Gibbs



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Technology Update

Keeping Up with Network Technologies and Standards

NETWORK DESK

Network World tracks down answers to your questions. Please submit them to Dana Thorat via phone at (800) 622-1108, via fax at (508) 820-1103 or via the Internet at djt@world.std.com.

Can you help me get Microsoft Corp.'s Windows for Workgroups Version 3.11 and Novell, Inc.'s NetWare Version 3.12 to exchange electronic mail? Even though I followed Windows for Workgroups 3.11 instructions for creating a Workgroup Post Office (WGPO) on a NetWare file server, I keep getting an error message when I try to connect to the post office from a client.

Charles Carter via the Internet

Here's where your "Microsoft Windows for Workgroups Mail User's Guide" will come in handy, says Glen Whittaker of Stream International, Inc., a software reseller and support company in Norwood, Mass. Turn to Appendix B for instructions about how to create a WGPO on a NetWare server. Step 7 refers users to Chapter 5 of the mail user's guide for creating the WGPO.

You must skip the last step in Chapter 5, which describes how to share the newly created WGPO. Since the post office resides on a NetWare server, connections to the WGPO are made with the ServerPath= entry in the MSMAIL.INI file, which reflects the assigned drive letter to the NetWare server, volume and directory where the post office resides.

Can you provide me with some information about the encryption program ViaCrypt PGP?

Hollis Miller via the Internet

ViaCrypt Pretty Good Privacy (PGP) is a commercial product based on public-key cryptography that protects users' electronic information, including E-mail. By using public-key cryptography, ViaCrypt PGP eliminates problems associated with distributing keys used in conventional secret-key cryptography.

With public-key cryptography, the key is split into two halves: a private key that the sender never reveals and a public key that can be freely distributed. The public and private keys are mathematically related — anything encrypted using the public key can be decrypted only with the

See Help desk, page 44

Pumping up 10Base-T with isoEthernet

By Mark Sodergren

Ratified last month, the IEEE 802.9a isochronous Ethernet standard provides a way to efficiently deliver voice, video and datastreams to the desktop over existing 10Base-T infrastructures.

With isoEthernet-based products, net managers will be able to integrate LAN and WAN services for real-time, interactive collaboration while extending their current investments in standard Ethernet. IsoEthernet addresses the problems long associated with putting circuit-switched voice and video onto links provisioned for packet-based LAN traffic.

Breaking the barrier

The ability to support multimedia applications and services in the shared network environment has been limited by the connectionless nature of standard Ethernet. With traditional Ethernet, LAN traffic is bursty and packet-oriented, which is efficient for data transmission but not for time-sensitive interactive traffic. Such traffic is better carried over connection-oriented public networks that can guarantee end-to-end connectivity through time-division multiplexer (TDM) circuits.

IsoEthernet serves to establish point-to-point connectivity over the Nx56K/64K bit/sec digital switched network through 10Base-T Ethernet cabling. With the technology, network managers can create virtual workgroups, eliminate geographic barriers and allow full-collaborative computing — all while relying on existing physical networks.

Bandwidth allocation

Over 10Base-T, IsoEthernet multiplexes 56K/64K bit/sec ISDN B channels to bring packet plus wideband circuit-switched multimedia services to the desktop over Category 3 unshielded twisted-pair cable. Its encoding scheme, called 4B:5B, increases the total bandwidth available on that wire from standard Ethernet's 10M to 16M bit/sec. Through the 4B:5B encoding

scheme, isoEthernet yields 16M bit/sec from the same 20-MHz clock that would only provide 10M bit/sec using the Manchester encoding scheme of traditional Ethernet.

The additional 6M bit/sec of bandwidth serves a multimedia pipe — 96 ISDN B channels, or

tive videoconferencing and data collaboration, for example — from the packet-based LAN.

Separating time-sensitive and packet-based traffic takes a tremendous amount of pressure off the standard LAN and prevents interference inherent to Ethernet packet-switched networks.

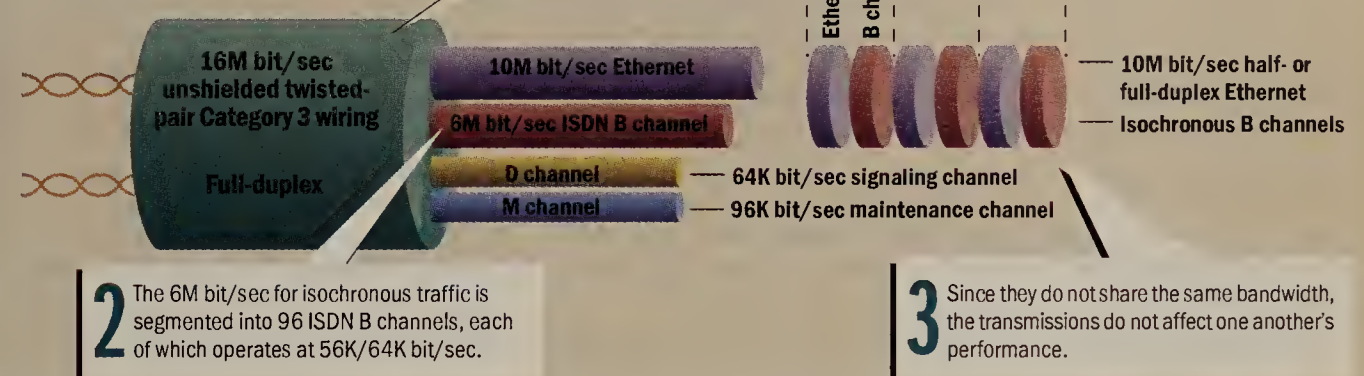
port both AAL1 and AAL5.

Recognizing the need to foster and manage the deployment of isoEthernet solutions and products, a group of vendors formed the isochronous network communication Alliance (incAlliance) in June. It is focusing on developing total system

UP CLOSE

IsoEthernet bandwidth

The IEEE 802.9a standard provides a way for two networks to run over 10Base-T wiring.



the equivalent of four dedicated T-1 connections — to isoEthernet workstations. It provides the guaranteed bandwidth for video and voice traffic; the 10M bit/sec serves as the Ethernet-only data, or packet, channel.

Because the 6M bit/sec isochronous bandwidth of isoEthernet is divided into 96 standard 56K/64K bit/sec segments, it can either be allocated in any combination required by the particular connection or can be used as a whole. For instance, if a particular user's videoconferencing connection requires only six B channels, or 384K bit/sec, 90 B channels remain for other voice, data or video traffic.

Multimedia traffic

It is important to note that isoEthernet uses TDM to isolate local multimedia applications from a company's typical packet LAN/router data flow. The performance of both local Nx 56K/64K bit/sec ISDN channels and Ethernet packet traffic is maximized on the same LAN wiring. Network managers can add a stackable isoEthernet hub to the wiring closet to off-load bandwidth-hungry multimedia file transfers — real-time interac-

The separation diminishes the conditions that have promoted pauses and disruptions in voice and videostreams over 10Base-T.

IsoEthernet architecture

IsoEthernet can be seamlessly integrated into an existing 10Base-T Ethernet domain. To do so, an isoEthernet hub, which enables synchronization between WAN and LAN services, needs to be added to the wiring closet. Multimedia workstations, outfitted with isoEthernet adapter cards, connect to the isoEthernet hub. An attachment unit interface would provide connectivity between the isoEthernet and Ethernet hubs.

Network managers can take advantage of isoEthernet without modifying WAN interfaces, bandwidth managers, hubs, switches, routers, network operating and management systems, servers and cabling.

In addition, isoEthernet supports an upward migration to Asynchronous Transfer Mode networks. Apple Computer, Inc. and National Semiconductor Corp. already have designed adapter cards that integrate an onboard segment assembly reassembly (SAR) function to sup-

solutions for real-time, interactive applications while supporting open standards.

Vendor support

IncAlliance participants comprise hardware and software vendors, telecommunications service providers and OEMs. Members include Apple, Ascom Nexion, AT&T, DataBeam Corp., Ericsson, Future Labs, Inc., IBM, Incite, Luxcom, Inc., MCI Communications Corp., Mitel, Inc., National, Pacific Bell, Primary Rate, Inc., Quicknet Technologies, Inc., Siemens Rolm Communications, Inc., Vcon, Inc. and Zyadron, Inc.

Some isoEthernet-compliant hardware, software and services are available today, and customer beta tests have begun. Total systems will be commercially available in October.

Sodergren is director of strategic marketing, interactive multimedia, at National Semiconductor Corp. in Sunnyvale, Calif.

COMMENTS?

See "How to reach us" on the Opinions pages.

Rising from the deathbed

Remember electronic banking — that ballyhooed 1980s movement to let customers with PCs or special phones bank from the comfort of their own homes?

It ranks right up there with videotex, integrated voice/data terminals, OSI and ISDN as one of the celebrated technology flops of our time. Customers avoided home banking in droves because it cost too much and didn't let them do anything meaningful.

But, like ISDN, electronic banking is poised for a comeback, as our cover story this week explores. And its resurrection holds lessons for any company extending its business electronically.

Spurred by fears that Microsoft would steal electronic finance from under their noses — a fear that reached fever pitch when Bill Gates announced his now-abandoned Intuit buyout — banks are rolling out new electronic banking services. They have reason to worry. According to a recent article in *The Wall Street Journal*, banks held 65% of all assets held with U.S. financial firms during the 1950s. Today, that share has fallen to less than 35% — a trend that will be hastened as nonbank competitors get into electronic finance.

Will electronic banking be a hit this time? Not overnight, but over the long term, it will be profoundly successful.

The new services, which use such front ends as Intuit's Quicken and Microsoft Money, aren't based on proprietary technology and fit more neatly into customers' desktop environments. They also offer a wider range of functions, from bill paying to checkbook balancing, and even some brokerage services, such as portfolio management plus stock and mutual funds sales.

Among those offerings, electronic checking is critical. If banks can be content to take only a small transaction fee for each bill paid, they could build a huge business as customers become accustomed to the convenience and lower cost of E-checking.

Earlier, banks seemed to view electronic banking as a new revenue source, charging customers for services they get largely for free. Banks seem to understand now that electronic banking is a way to cut costs — by reducing the need for branch offices, tellers and such — and build customer loyalty. (With that in mind, Chase Manhattan has dropped all electronic banking charges.)

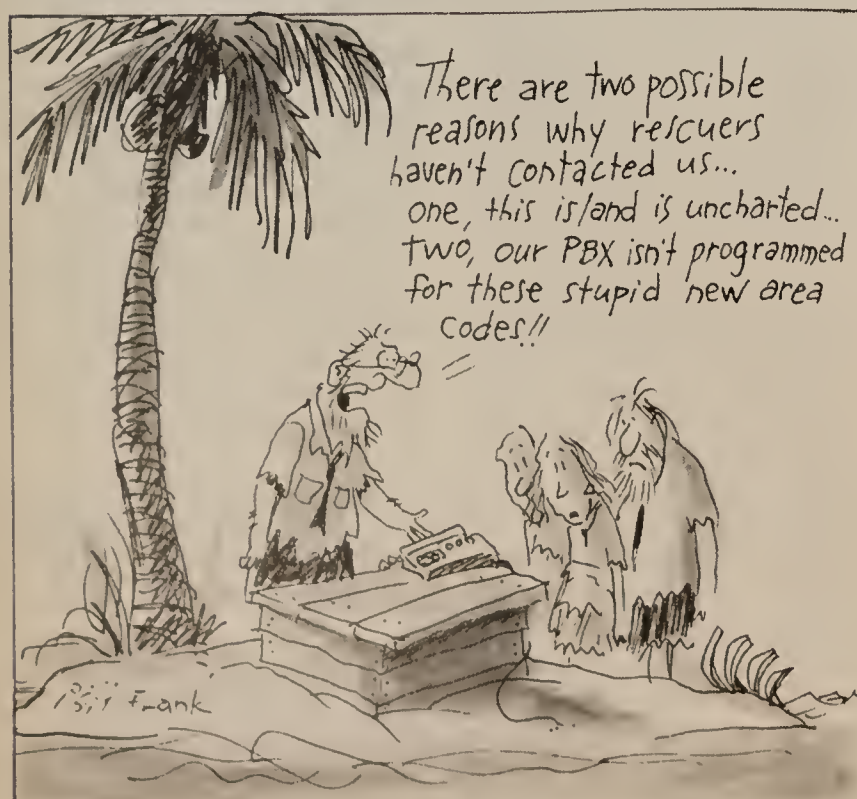
In short, banks are realizing that customer dynamics don't change on-line. You have to offer real value, and you can't expect customers to foot the bill for your cyber-forays. That's something your company needs to remember as it pushes into electronic commerce.

John Gallant

jgallant@nww.com

Teletoons

By Phil Frank and Joe Troise
Internet: guru@well.com



Deal underscores need for users to get serious about Internet services

The recent announcement that AT&T and BBN Planet Corp. will join forces to provide Internet services, and AT&T's subsequent \$8 million investment in BBN Planet, mark a major milestone in the frantic evolution of the Internet services market.

For BBN Planet, it brings the company full circle from its early roots as the pioneer of time-shared computing and the creator of the service that went on to become Telenet. For AT&T, the alliance fills a gaping hole in the carrier's emerging services strategy and provides AT&T with direct access to several key resources needed to deliver mission-critical Internet services. And for users, it confirms that the commercialization of the Internet and World-Wide Web is a done deal.

While Internet pioneers may pine for the old days when the Internet was a society of experts and the technically elite, and netiquette was taken seriously, there is no way to go back: The Internet and the Web are now part of a freewheeling, commercially driven environment many players are seeking to tap.

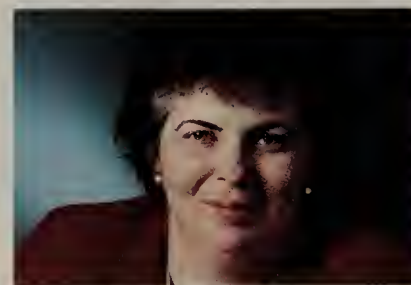
Now the challenge to the industry is how to develop a set of models for effectively managing and billing the tidal wave of users who are surfing, cruising, buying, selling and chatting on the 'Net. During the next two to three years, we will probably see stratification of the 'Net that goes beyond the current interest groups to business-dominated affinity groups. While a somewhat ad hoc "free" portion of the 'Net will clearly survive among the universities and government servers, the balance of power will continue to shift to business users and their suppliers.

Corporate users' ability to build new affinity groups will be key to businesses getting value from the 'Net. Just as the American Automobile Association and the American Association of Retired Persons gather together the collective political and buying clout of their large memberships to negotiate discounts and bargains, so will businesses begin to link employees, customers, suppliers, consultants and analysts together across cyberspace.

I have previously written about both the commercialization of the Internet and the potential power of affinity groups. The AT&T/BBN Planet announcement reinforces my belief that the time is right for users to deal seriously with these issues.

BBN Planet proselytizes for business interaction networks — networks that allow businesses and their communities of interest to communicate, collaborate and do business on-line securely via the Internet. It is the injection of security into the discussion that is the key turning point.

Up until now, security fears have kept many companies from conducting critical business over the Internet. Some customers have been passing credit information over the 'Net using a variety of more or less secure processes. Others have begun sending highly critical and confidential documents over the 'Net, basically ignoring the possibility that a hacker might intercept the document. However, it is not unusual to find Fortune 500 enterprises



Mary Johnston Turner

that still bar or severely restrict Internet and Web access due to security concerns.

BBN Planet, as the pioneer of secure Internet services for the defense data network, brings decades of experience to the market. The announcement of its partnership with AT&T included the introduction of an Internet Site Patrol service, which provides Inter-

net firewalls with an application-level gateway and a packet-filtering router. Other vendor efforts indicate that the elements necessary for constructing reliable, secure interenterprise communities via the Internet are shaping up. These include Electronic Publishing Resources, Inc.'s InterTrust, which allows owners of copyrighted materials to limit the kinds of operations that can be performed on the content and a recently announced venture between Check Free Corp. and CyberCash, Inc. to develop systems that will let consumers safely conduct payment transactions in real time using credit and debit cards, checks and cash.

Clearly, the vendors mentioned here are not the only ones pursuing the Internet gold ring. MCI is a major player in supplying key circuits on the Internet backbone, and Sprint has been an early player in the Internet wars. However, the entry of AT&T signals the conclusion of the industry's chaotic embryonic phase. We are now into serious growth mode. Growth businesses are generally characterized by large-scale, aggressive investment,

shifting customer loyalties, swings in market share, and fine-tuning of the basic technology to the needs and performance demands of unique market segments and vertical markets.

For users, this means a number of things. First, and most obvious, if your organization still does not have an Internet strategy that deals with external electronic mail, Web access, and general access to the Internet newsgroups and related resources, develop one now — you are well behind the curve.

Second, if your enterprise hasn't figured out a process for developing your Internet and Web electronic commerce strategy, do it now — you are on the verge of being passed by your competitors. Web pages abound for companies of all sizes. Using the 'Net for competitive advantage — perhaps by building unique 'Net-based communities and leveraging them for profit — is beginning to occur on a small scale: Don't get left behind.

Finally, it's time to start lining up vendors to help you. Your information technology and business planning staff will probably need a lot of help conceptualizing the possibilities for electronic commerce, Internet architectures, security policies and more. The vendors are quickly moving from experimental mode, where they give out advice at a discount, to demand overload, where customers have to get in line. Your company does not want to be at the end of the queue.

Turner is a principal with Northeast Consulting Resources, Inc., a Boston-based consulting company. She can be reached at (617) 654-0619 or via the Internet at turner@ncr.com.

Users should be coy when dealing with global suitors

Alan Pearce

Global alliances among telecommunications service providers, along with the privatization and competitive policies that are sweeping the world, represent the beginning of a great new trend for users.

The primary goal of the global alliances is to serve as one-stop shops for midsize and large multinational firms. The number of alliances, and the parties' eagerness to please users in order to drum up business, virtually guarantee that you will not be price-gouged — as you are today if you're using a wide array of sophisticated services on a global basis.

In forming their global alliances, the Big Three U.S. carriers are pursuing widely divergent strategies.

AT&T, as usual, seems to be ahead of the pack with its UniSource and WorldPartners Association joint ventures in Europe and Asia, respectively — alliances collectively known as UniWorld. AT&T needs more allies, particularly in Asia, in order to pull off a true global network, but it is well poised to dominate the global telecommunications service and equipment markets as we move into the next century.

As one might expect, AT&T's strategy is risk averse. AT&T has allied itself with incumbent carriers: in Europe, Holland's KPN, Sweden's Telia, Switzerland's Swiss Telecom PTT and Spain's Telefonica de Espana SA; and in Asia, Japan's Kokusai Denshin Denwa Company, Ltd. (KDD), Hong Kong's Hong Kong Telecom and Singapore's Singapore Telecom.

AT&T would dearly love to tempt Japan's Nippon Telegraph and Telephone Corp. (NTT), the world's largest telecommunications company, into the fold, but so far NTT is keeping its options open.

MCI Communications Corp., meanwhile, is pursuing a riskier strategy. MCI is owned in part by BT, perhaps the most efficient, effective and user-friendly telecommunications carrier in Europe.

BT-MCI's global partners, unlike AT&T's, are nontraditional. In addition to tabloid mogul Rupert Murdoch's The News Corp., Ltd., they include banks in Italy and Spain and a utilities group in Germany — organizations that likely will be licensed to compete with the incumbent carriers once the European Union's phone

market is deregulated on Jan. 1, 1998.

Sprint Corp. will be without a global strategy unless U.S. and European policy makers approve the proposed 20% purchase of Sprint by Deutsche Telekom (DT) and France Telecom (FT). Sprint is poised to offer services in Britain, a market-entry strategy that is coveted by both DT and FT.

However, policy makers will allow the deal to be consummated only if both the German and French governments agree to open their telecommunications markets to competition from U.S.-based companies. The Germans are showing signs that they are willing to open their market, but the French have problems with immediately embracing competition.

From today's perspective — and things can change dramatically and quickly in this age of telecommunications, information and entertainment convergence — AT&T is clearly ahead strategically. But AT&T may run into some problems dealing with highly independent European and Asian carriers such as KPN, Telefonica, Singapore Telecom, Hong Kong Telecom and KDD.

BT-MCI is not all that far behind, however. And because its non-traditional allies know little, if anything, about serving the rapidly expanding global telecommunications market, they will probably be more willing to let BT-MCI set the course.

Sprint lags way behind and can only begin to play catch-up when and if its deal with DT and FT is approved — and that will depend on government officials in Washington, D.C. and Brussels.

Users would be well advised not to enter into a long-term contractual commitment with any of the current global alliances. Instead, deal with them all, play them off each other and wait to see what happens between now and the turn of the century. At least there are two viable options today, a third in the works, and more may be on the horizon.

These are good times for users to be shopping for global services at lower prices. But remember, the future promises even better terms.

Pearce is president of Information Age Economics, Inc. in Washington, D.C. He can be reached at (202) 466-2654.



markets, at least as of today.
Peter Alissandratos
New York

Zap this idea

Regarding your article "ZAP! NetWare users get really wired — over electric power lines" (July 3, page 1): It looks like Novell and *Network World* need to talk to some electrical engineers.

Jack Gold, the META Group, Inc. analyst quoted in the article, may think electric power travels over almost the same type of copper cable as do Ethernet packets. He's wrong, unless Ethernet packets are traveling over cable that has uncontrolled capacitance, impedance discontinuities from switched loads and so much ambient power that it would be more proper to refer to a noise-to-signal ratio. The only thing electric power cable and Ethernet cable have in

See In-box, page 45



IN-BOX

Bay pays today

In your article "Bay Networks one year later: thriving while awaiting 'synergy'" (July 3, page 10), you state correctly that the financial results of the SynOptics-Wellfleet merger are impressive. Clearly, the current stock price supports this fact.

However, the future success of Bay Networks will depend on how hubs, routers and switches work together.

The LAN switching market is growing fast, and the virtual LAN market is also becoming larger.

Currently, market leaders have started to establish market shares in both areas. It is unclear, however, that Bay Networks has been able to gain any major share in these-

How to reach us

CALL: (508) 875-6400

FAX: (508) 820-3467

WRITE: *Network World*, 161 Worcester Road, Framingham, Mass. 01701

INTERNET: network@world.std.com

MCMAIL: 390-4868

NETWORK HELP DESK: Contact Dana Thorat by any of the means above or via the Internet at djt@world.std.com

READER ADVOCACY FORCE: Leave us story tips or information about problems with products at (800) 622-1108, Ext. 487, or via the Internet at

nwraf@world.std.com

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Phone: (508) 820-7433; Fax: (508) 820-3467

WANS & INTERNETWORKING

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Phone: (508) 820-7525; Fax: (508) 820-3467

Joanie Wexler - Senior Editor

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Phone: (508) 820-7422; Fax: (508) 820-3467

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Phone: (202) 879-6758; Fax: (202) 347-2365

LOCAL NETWORKS

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Contributing Editors

Daniel Briere, David J. Buerger,

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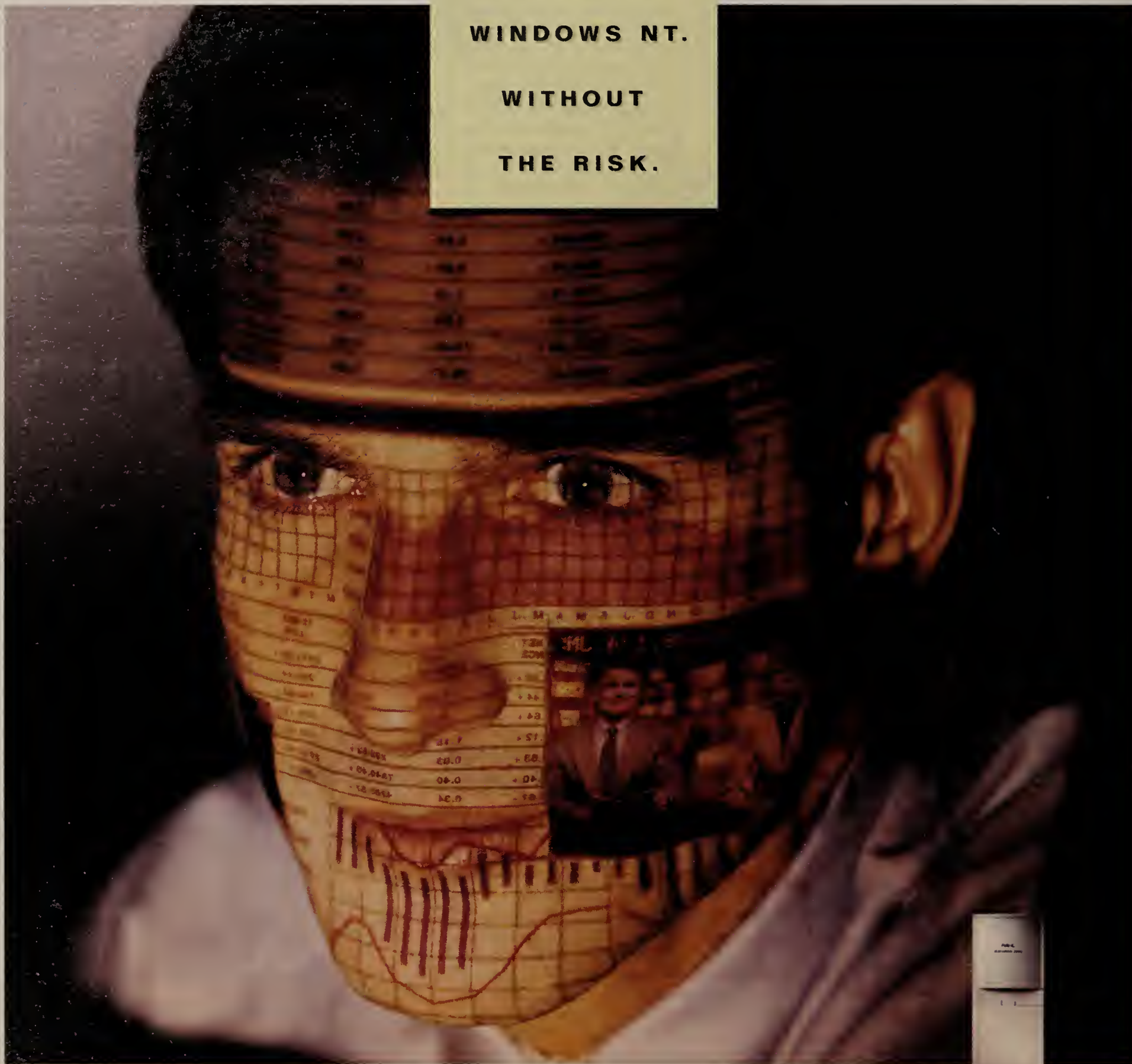
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Buyer's Guide

Integration applications give you

MANAGEMENT THE UNITED WAY

An emerging class of applications is bringing a measure of peace to the troubled network management landscape.

While management platform vendors were duking it out, each trying to win more third-party support, other vendors stepped in with tools that did what the platforms largely couldn't: collect data from disparate sources and thread it together to form an accurate, cohesive depiction of your network.

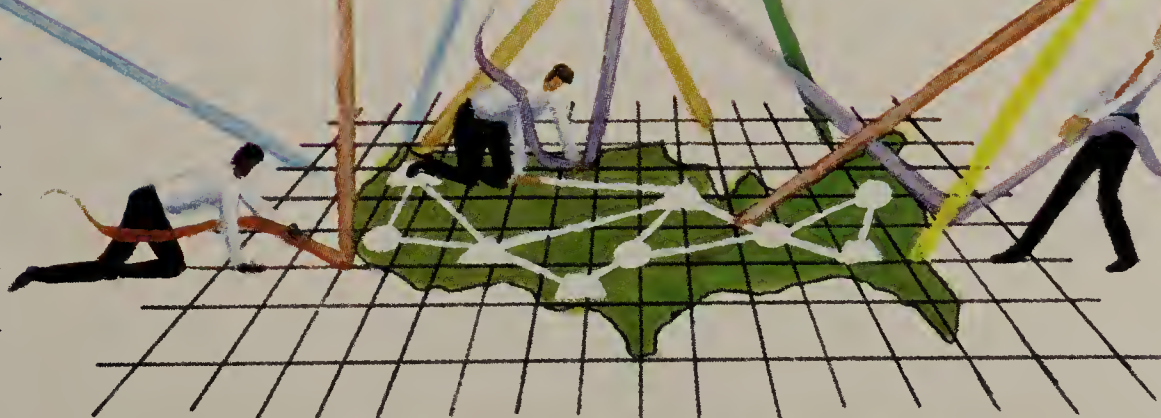
These applications act as managers of managers (MOM), borrowing from the concept first espoused in such products as AT&T's now-discontinued Accu-master Integrator. MOM applications consolidate network topology, event and other information from element managers, Remote Monitoring probes and disparate management platforms that themselves collect data from various element managers (see graphic, page 39).

MOM applications from such vendors as Boole & Babbage, Inc., Bridgeway Corp., Micromuse USA, Inc. and Seagate Enterprise Management Software (which now owns NetLabs, Inc.) meet user needs for integrated network mapping and monitoring.

Not to be outdone, platform vendors, such as Hewlett-Packard Co., IBM and SunSoft, Inc., are beginning to provide application suites that offer tighter integration among the various functional and element management applications they support. In addition, they are developing links that will enable disparate platforms to communicate, something not easily accomplished today.

Regardless if you choose one of these new MOM applications or a platform suite, there is a handful of common criteria to evaluate. Look closely at the type of cross-platform integration provided as well as support for distributed management domains. Other criteria include flexible alarm notification and escalation techniques as well as the availability of development tools for building add-on programs.

Cross-platform functional integration is MOM's *raison d'être*. MOMs filter and correlate network events, alerts, alarms and traps collected from multiple platforms and element managers, and block the truly mundane ones from



This new class of applications weaves data from multiple platforms to provide a better view of the big picture.

By James Kobiels

reaching the operator. The important fault information is then displayed to the network operator or used to trigger automated routines that, for example, reboot a malfunctioning network device or reroute traffic around a failed link.

MOMs provide cross-platform management integration through three principal techniques: data sharing, terminal emulation and graphical user interface (GUI) integration.

Data sharing involves importing topology and event data from management platforms, and is supported by all MOM applications. Terminal emulation is the ability of MOMs to emulate a management platform console within a window and is supported by Boole & Babbage, MAXM Systems Corp. and Peregrine Systems, Inc. GUI integration is the ability to access a MOM application from the platform's menu bar or icon interface and is supported by Boole & Babbage, Bridgeway and LEGENT Corp., which was recently gobbled up by Computer Associates, Inc.

For the most part, MOM applications use the Simple Network Management Protocol Version 1 to poll platforms' event monitors or managed devices directly. In some cases, MOMs can issue commands that instruct a platform to use a proprietary protocol such as IBM's NetView Management Vector Transport (NMVT) to poll managed devices.

Facilitating the exchange of data between a MOM application and a platform can require the use of a proxy agent that translates a proprietary management protocol to SNMP — the protocol understood by the management console. A mix of MOM vendors offer these proxy agents. For instance, Boole & Babbage has its Connection Bank module, Bridgeway uses its Extensible Proxy Agents, Micromuse has deployed its Legacy Watch, and MAXM offers its Max/Enterprise.

One of the strong features of Bridgeway's EventIX is its ability to translate and relay fault and topology messages between non-SNMP element managers and HP's OpenView, according to Brian Sullivan, an engineering specialist for Stanford Telecommunications, Inc., a systems integrator in Reston, Va.

"We're using EventIX to build proxy agents that will get [element manage-

Continued on page 38

Continued from page 37

ment] messages into a standard format," Sullivan says. Once in standard format, the messages can be imported into OpenView. Sullivan is integrating element managers that control a nationwide network of Motorola Codex 9800 modems, AT&T microwave radio communications links, and radar equipment for the U.S. Federal Aviation Administration.

Once they've detected network faults, several MOMs have the ability to automatically generate trouble tickets. Boole & Babbage's Command/Post, ISICAD, Inc.'s Command, LEGENT's Paradigm/XP Problem Manager, MAXM's Max/Enterprise and Peregrine's ServiceCenter all include internal trouble-ticketing modules.

One of the most impressive features of Boole & Babbage's

Command/Post is its ability to forward alarms to several third-party trouble-ticketing and help desk applications, including Remedy Corp.'s Automated Response System, IBM's InfoMan, Quintus Corp.'s CustomerQ, Shany, Inc.'s AlertView and Answer Systems, Inc.'s Apriori.

The platform vendors have spent more time lining up third parties to write applications that

run on top of their systems than they have building cross-platform links. Each of the top three platform vendors — HP, IBM and SunSoft — now has a stable of more than 100 third-party management providers. The second-tier platforms — AT&T Global Information Solutions' (GIS) OneVision, Cabletron Systems, Inc.'s Spectrum, Digital Equipment Corp.'s PolyCenter and Novell, Inc.'s ManageWise

— have recruited dozens of development partners.

While the platforms enable a mix of applications to share a common GUI and an integrated mapping facility, they fall short when it comes to providing a cohesive view of the network because they lack cross-platform links.

The platform vendors are now paying attention to user demands for those cross-platform links. In the past few years, platform vendors have developed limited cross-platform interoperability through various standardization, technology-sharing and cross-licensing activities.

For instance, all of the platforms support the manager-to-agent protocol found in SNMPv1. SunSoft and Cabletron now support the manager-to-manager protocol in SNMPv2, which will enable disparate platforms to communicate. Most other platform vendors promise they will upgrade to SNMPv2 within the coming year, says Richard Villars, director of network management research at International Data Corp., a market research firm in Framingham, Mass.

The platform vendors are also moving to make their core technologies more compatible by using similar APIs and other common tools. In fact, application developers today can write programs that require minimal modification when being ported from one platform to another.

IBM's NetView/AIX, HP's OpenView and AT&T GIS' OneVision all share the same core technology, which was developed by HP. NetView/AIX applications can also run transparently on Digital's PolyCenter for NetView Consoles because Digital has integrated PolyCenter into IBM's management framework.

Seagate's NetLabs once sold a management platform of its own called DiMONS but has decided to license that core platform technology to others and focus on developing MOM applications. The core technology used to create DiMONS has been licensed to SunSoft for inclusion in the Solstice network management environment, and to HP to augment OpenView's event-correlation feature.

Cross-platform interoperability is also being achieved through incorporation of MOM architectures in some management platforms. Cabletron has built cross-platform topology and event-sharing links from Spectrum to SunSoft, Inc.'s SunNet Manager, HP's OpenView, IBM's NetView and Novell's ManageWise, which is a collection of

Network management applications

Company	Product	Operating environment		Management platform	Sources for data integration					Platform services used				Protocol	Mgmt. functions	Pricing method	
		P = Platform S = Stand-alone O = Other	OS = OS/2 U = Unix W = Windows NT O = Other		N = NetView/6000 NW = NetWare Management System OV = OpenView P = Polycenter S = Spectrum SM = Systems Management Server SN = SunNet Manager SO = Solstice O = Other	Single console only	Multiple consoles from a single vendor	Multiple consoles from different vendors	Multiple element management systems	Multiple net management applications	API for collecting SNMP data from devices	Autodiscovery feature	Event/alarm/trap filters				GUI or command line
AT&T Global Information Solutions																	
Boole & Babbage, Inc. (408) 526-3000	COMMAND/Post	S	U	N, OV, P, S, SE, SN, O	✓	✓	✓	✓	✓	✓		✓	✓	✓	S1, O	F, S	C: \$6,000 P: \$2,000-\$12,500 S: \$60,000
	Ensign Alarm Manager	S	U, O	N, OV, P, SN, O	✓	✓	✓	✓	✓	✓		✓	✓	✓	S1, O	A, F, P, S	C: \$400 P: \$4,500 S: \$750
Bridgeway Corp. (206) 881-4270	EventIX 2.0	P, S	U	N, OV, SN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	S1, O	C, F, S	S: \$15,000-\$25,000
	EventIX IDNX SNMP Proxy Agent	P, S	U	N, OV, SN	✓	✓	✓			✓	✓	✓	✓	✓	S1, O	C, F	C: \$1,500-\$4,000 O: \$10,000+
	Map Sync 2.0	P, S	U	N, OV, SN	✓	✓	✓			✓	✓	✓	✓	✓	S1	C, F	P: \$5,000-\$7,000
Cabletron Systems, Inc. (603) 332-9400	Blue Vision	P	U	S, O		✓						✓	✓	✓	N, S1, O	C, F, S	P: \$5,000 S: \$5,000
	Maestro Vision	P	U, W	S			✓	✓	✓	✓		✓	✓	✓	S1, O	A, C, F, P, S	C: \$2,750 S: \$2,750
	SpectroPhone	P	U	S			✓	✓	✓	✓		✓	✓	✓	C, S1, S2, O	F, S	S: \$4,500
	Spectrum Configuration Manager	P	U	S			✓	✓	✓	✓		✓	✓	✓	C, S1, S2, O	C, F, P, S	S: \$10,000
Hewlett-Packard Co. Network Server Division (800) 752-0900	HP OpenView for Windows Workgroup Node Manager	S	W, O	OV					✓	✓	✓	✓	✓	S1	F, P	P: \$1,495	
Hewlett-Packard Co. Network and System Management Division (800) 637-7740	HP OpenView Network Node Manager	P	U	OV		✓		✓	✓	✓	✓	✓	✓	S1	F	S: \$15,750	
	HP OpenView Operations Center	P	U	OV		✓		✓	✓	✓	✓	✓	✓	S1, O	F	C: \$400-\$2,000 S: \$30,000	
IBM (800) 426-3333	IBM NetView for MUS/ESA	P	O	O		✓	✓	✓	✓	✓	✓	✓	✓	C, N	A, C, F, P, S	ICB	
	IBM NetView for OS/2	P	OS	N	✓	✓				✓	✓	✓	✓	N, S1	A, C, F, P	P: \$4,995	
	IBM NetView for Windows	P	O	O	✓					✓	✓	✓	✓	S1	C, F, P	P: \$949	
	SystemView for AIX	S	OS, U, W	N, NW, OV, P, S, SE, SM, SN			✓	✓	✓	✓	✓	✓	✓	C, N, S1, S2	A, C, F, P, S	S: \$15,000	
ISICAD, Inc. (800) 634-1223	Command	S	U	N, OV, S, SE, SN			✓	✓	✓	✓	✓	✓	✓	O	A, C, F, P	P: \$1,000-\$5,000 (#) S: \$17,500	
LEGENT Corp. (800) 676-5468	Paradigm/XP Problem Manager	S	U	N, NW, OV, S, SN		✓	✓	✓	✓	✓	✓	✓	✓	S1, O	C, F	C: \$795 P: \$4,500 S: \$16,500 (!)	
MAXM Systems Corp. (800) 393-6296	MAX/Enterprise	O	OS, U, O	N, OV				✓	✓	✓		✓	✓	N, S1, O	F	C: \$1,000-\$5,000 P: \$75,000-\$215,000	
Micromuse USA, Inc. (214) 980-8727	Netcool/OMNIbus	P, S	U, O (*)	N, NW, OV, P, S, SE, SM, SN, O	✓	✓	✓	✓	✓	✓	✓	✓	✓	C, N, S1, S2, O	A, F, P, S	P: \$7,500 S: \$25,000	
Novell, Inc. (800) 638-9273	ManageWise	P, S	O	N, NW, OV, P, S, SE, SM, SN, O	✓	✓	✓	✓	✓	✓	✓	✓	✓	S1, O	A, C, F, P, S	S: \$795-\$12,995 (&)	
Peregrine Systems, Inc. (800) 638-5231	ServiceCenter	P, S (*)	U, W, O	N, OV, O		✓	✓	✓	✓	✓	✓	✓	✓	N, S1, O	A, C, F	C: (@) S: \$25,000-\$220,000	
Seagate Enterprise Management Software (800) 525-5645	Seagate Asset Manager	P, S	U	N, OV	✓	✓	✓	✓	✓		✓		✓	S1	A, C, F, P	S: \$4,995	
	Seagate LANAlert	S	OS, U, W, O	N, OV		✓	✓		✓			✓	✓	S1, O	A, C, F, P, S	?	
	Seagate Nerve Center	S	U	OV		✓				✓	✓	✓	✓	S1	F	P: \$7,500-\$15,000	
SunSoft, Inc. (800) 786-7638	Solstice	P, S	U	SE, SN	✓	✓	✓	✓	✓	✓	✓	✓	✓	C, S1, S2	C, F, P, S	P: \$4,995-\$19,995	

Products highlighted by color were selected for the Short List.

Footnotes:

(!) The price includes one client.

(#) The \$1,000 price includes an API interface; the \$5,000 price, one API gateway and interface.

(*) Windows NT will be available in late November.

(&) The product is also available bundled with NetWare.

(*) The product also can run on a stand-alone workstation.

(@) The client price is a percentage of the server price.

Chart compiled by Kathy Scott

ICB = Individual case basis

Novell's NetWare Management System and Intel Corp.'s LAN-Desk. Novell has also linked its management environment with HP's, IBM's and SunSoft's.

Management domains

Whether cross-platform communication is available or not, all MOM applications and platform suites support a single centralized management domain, in which all functions and data are available through one console. That console is usually running a variant of Unix and an Open Software Foundation, Inc.'s Motif- or X-Windows System-based GUI. Some products also support Windows NT and OS/2

consoles, while others run on mainframes under MVS.

The better MOM applications and platform suites are starting to support flexible, distributed management domains, which provide multiple network administrators with access to only those capabilities and data required to do their respective jobs. Distributed management domains are an important capability because the so-called network manager is often a team of specialized professionals collaborating across great distances. Typically, network managers have responsibility for particular regions, subnetworks, devices or functions.

Distributed management domains will almost certainly become a standard feature in MOM applications and platform suites during the next few years, once SNMPv2 and distributed management object-sharing are universally implemented.

Until then, you can get multiple domain support from a few MOM applications, including Micromuse's Netcool/Omnibus, Peregrine's ServiceCenter, LEGENT's Paradigm/XA and Seagate's NerveCenter.

Micromuse's Netcool is among the most flexible, allowing domains to be configured in peer-to-peer, mesh and hierarchical manager-to-manager configurations. This approach is in keeping with how management responsibilities are distributed and delegated across the enterprise. Enterprisewide network topologies, faults and events are maintained in a high-performance, distributed object database. The product can then filter through the information and present a customized view to various users.

SunSoft also uses distributed object technology to support multiple domains. The company has announced plans to provide distributed object sharing among SunNet Manager consoles under its Solstice Enterprise Management framework. Similar plans are being mapped out for IBM's Karat and HP's Tornado projects. However, there's no telling when cross-platform domains will become a widespread feature of management platforms.

SunNet Manager currently provides a limited variant of distributed domains known as selective data replication. Under this scheme, one SunNet Manager console — using SunSoft's Cooperative Consoles module — can send filtered segments of its management database to other consoles, either in peer-to-peer or hierarchical topologies. Through this mechanism, applications running on different physical consoles can be provided with disparate views of an enterprisewide Management Information Base (MIB).

But the platform with the best implementation of distributed intraplatform management domains today is Cabletron's Spectrum. Spectrum-compliant applications are based on a client/server architecture. Device polling and alarm surveillance are performed by distributed SpectroServers, each of which can be set up to manage specific geographic, functional or technology domains. Network administrators access and manipulate SpectroServer-provided data through GUI-based

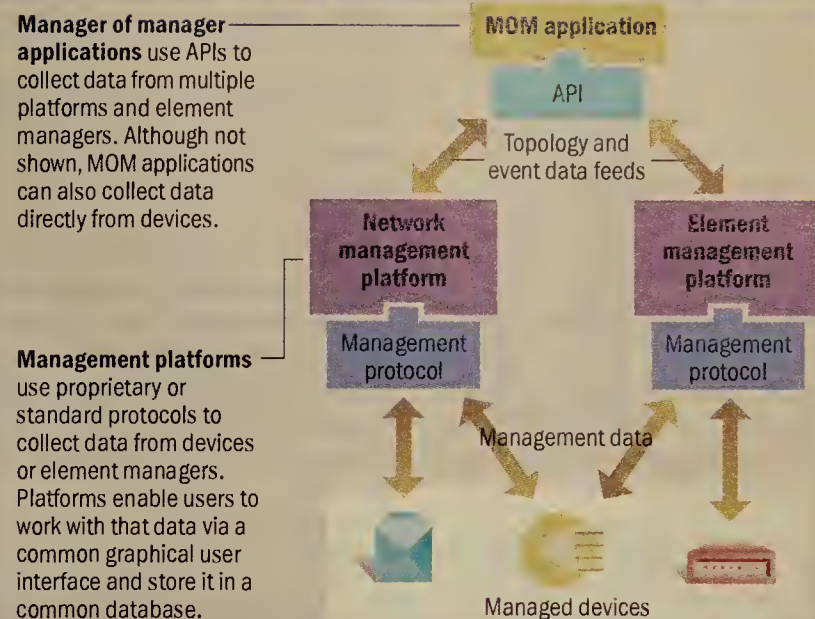
management consoles called SpectroGraph clients. Servers and clients can interconnect in web, mesh and hierarchical topologies, utilizing Cabletron's proprietary manager-to-manager communications protocol.

Hierarchical management domains are the only topology available to management applications under IBM NetView.

ble tickets still need to be generated and transmitted to operators in the field to support further diagnosis and correction activities.

Boole & Babbage's notification capability is particularly impressive because it can route alerts to a half-dozen third-party trouble-ticketing and help desk applications. It can activate sec-

Different levels of integration



GRAPHIC BY SUSAN SLATER

NetworkWorld Short LIST

Network management applications

The Short List highlights products that Network World recommends you closely examine when you're looking to purchase network management integration applications. Products on this Short List integrate data from disparate management platforms as well as support a range of application functions, distributed management domains, notification/workflow capabilities, and application development tools. Each product can meet the needs of users with multivendor enterprise networks. Your needs may differ.

Boole & Babbage, Inc.'s Command/Post has most of what you want in an integrated management application. It integrates topology and event or fault data from Hewlett-Packard Co.'s OpenView, IBM's NetView and SunSoft, Inc.'s SunNet Manager network management platforms on a single screen. In addition, Command/Post can emulate the consoles used to operate each of those platforms and can be integrated into the graphical user interface of each platform.

Boole & Babbage uses software-based proxy agents to convert the protocols used by third-party element managers to a standard format that Command/Post can understand.

Command/Post can also automatically generate trouble tickets in response to alarms or forward alarms to one of several third-party trouble-ticketing and help desk applications. Other features include the ability to use scripted responses to routine problems and the selective routing of alerts and notifications to a pager, telephone, fax machine or electronic mail address.

Bridgeway Corp.'s EventIX, Map Sync 2.0 and EventIX IDNX SNMP Proxy Agent, along with a series of interface modules, have enabled the company to become a leader in management integration. Bridgeway's tools integrate topology and event or fault data from OpenView, NetView, SunNet Manager and AT&T Global Information Solutions' OneVision.

Bridgeway also supports automated console script responses to routine problems and provides tools for building Simple Network Management Protocol proxy agents, Management Information Base objects, data repositories, network maps and interapplication coordination routines.

Micromuse USA, Inc.'s Netcool/Omnibus offers strong support for object-oriented technology and distributed processing. The product integrates topology and event or fault data from OpenView, NetView and SunNet Manager. Also, the products maintain enterprisewide network topologies, faults and events in a high-performance, distributed object database, and can provide various console operators with customized views of the network areas each has responsibility over.

The company's support for distributed management domains enables users to connect management systems in a peer-to-peer, mesh or hierarchical manager-to-manager configuration.

Under Big Blue's framework, NMVT alerts are forwarded from distributed NetView/AIX servers into a central MVS-based NetView system.

Up the alarm escalator

Automatically getting the right information to the right console is one thing; doing something with it is another. A number of MOM applications, including Boole & Babbage's AutoCommand, as well as Bridgeway's EventIX and

ondary scripts to initiate an event if there's no response to a first trouble call and can escalate trouble tickets that are not closed within a prespecified time period through notifications to higher level network administrators.

Seagate's NerveCenter has a flexible repertoire of automated responses to network faults. It uses Unix scripts to generate trouble tickets, send electronic mail or pages to administrators, display special instructions on the console screen, log event data, or activate third-party diagnostic or corrective application programs.

Sophisticated trouble-ticket notification and escalation capabilities are available for all the platforms. In some cases, the platform provides its own workflow-oriented application, such as IBM's AIX Trouble Ticket/6000, HP's OpenView Fault Management System or SunSoft's Solstice HelpDesk.

A variety of third-party helpdesk applications are available for all the platforms, too. Interestingly, LEGENT's Paradigm/XP and Peregrine's ServiceCenter are among them.

Development tools

What makes it possible to run MOM applications on a platform is the strong set of development tools and support programs that platform vendors offer. In fact, these development tools and support programs are where

Continued on page 40

WEAK SECURITY
Security management capabilities are noticeably lacking from most of the integration applications listed in the Buyer's Guide chart on page 38. But that comes as little surprise as security features — such as user account administration, access control, encryption, key distribution and virus scanning — fall outside the traditional realm of network management and into the MIS world and the systems management tools found there.

MAXM's Max/Enterprise, support automated responses to routine problems, enabling clearing of problems before they turn into trouble tickets.

In many cases, however, trou-

Continued from page 39

platform vendors clearly outshine their MOM application competitors.

Network managers shouldn't have much trouble finding staff or consultants with experience building custom applications for any of the major platforms. However, when it comes to finding the platform vendor that provides the best support to corporate and third-party application developers, there are as many opinions as there are network management consultants and vendors.

While everyone seems to share a similar opinion that the platform vendors pay a lot of attention to pleasing as many developers as they can, some developers think that support from platform vendors as a group has been less than ideal. In fact, these developers say it is the lack of focus on cross-platform integration that hurts the platform vendors.

"Platform vendors have not looked at extending their environments to meet [application developers'] needs," says Jim Corrigan, president of the Management Integration Consor-

tium, a multivendor group working to achieve greater application-to-platform integration. The group has developed some specifications but has had some difficulty in winning support for them.

Many management applications—even some from the platform vendors—only integrate with the platform at the GUI level, primarily as an icon- or menu-based launching point. A fully integrated application would, among other capabilities, utilize the platform's event monitoring, filtering, tracing subsystems; agent management subsystem; MIB editor/browser; and shared management database.

"There is very little [application] integration happening with the platforms because there are too many [platforms]," says James Herman, principal with Northeast Consulting Resources, Inc., a consultancy in Boston.

Consequently, third-party applications running on the same management platform may not be able to share network topology, fault or performance data with one another, and may

Integration of another sort

There are truly scores of products on the market today that provide some level of management data integration—including everything from Remote Monitoring (RMON) probes to full-featured management platforms that integrate data from disparate network devices.

A number of vendors produce platform-based tools that monitor LANs and report traffic statistics, as well as isolate cable and other problems. These products, however, are limited to LAN monitoring functions and are often designed to report to higher level managers.

Armon Networking, Inc., Network Application Technology, Inc., Network Computing, Inc. and Network General Corp. make such monitoring products. HP offers HP NetMetrix, which monitors WANs, and HP ProbeView/SNMP for OpenView, which monitors LANs.

Another set of products is capable of integrating data from many vendors' network devices on a single console but can be considered more element managers than integrated enterprise managers. These products collect

data from Simple Network Management Protocol or RMON agents on such devices as hubs, routers and LAN switches.

While most of these products run on a stand-alone console and can feed information to a higher level manager, some, such as Bay Networks, Inc.'s Optivity, run on a net management platform and support some level of integration. Bay Networks claims that Optivity can provide enterprisewide management.

Even when running on a management platform, these products still leave it up to a manager-of-manager application to pull data from multiple platforms to form a cohesive network view.

Here are a few of the products that can integrate data from disparate devices on a single console: American Computer and Electronics Corp.'s NetPlus FCAPS, Castle Rock Computing, Inc.'s SNMPc, Cisco Systems, Inc.'s Cisco Works, Thomas-Conrad Corp.'s Sectra Management System for Windows, 3Com Corp.'s Transcend family of products, UB Networks, Inc.'s NetDirector products and Xyplex, Inc.'s ControlPoint.

Reader views on network management applications

Based on 100 interviews.

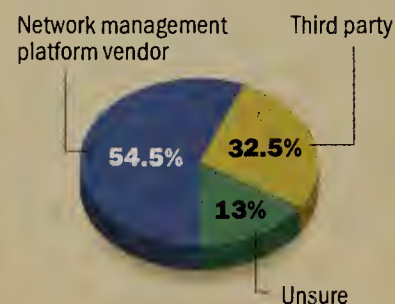
Key selection and purchasing criteria

Based on highest possible score of 5

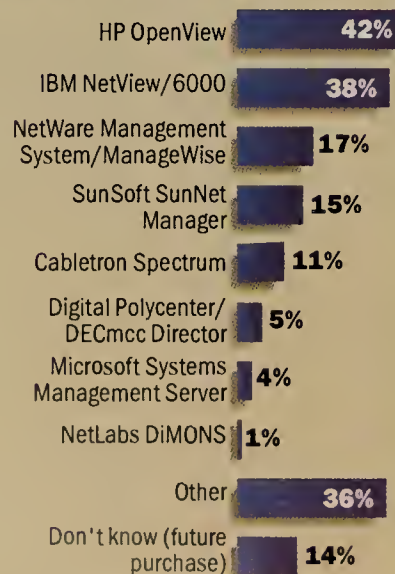
Ability to gather data from multiple vendors' management platforms	4.29
Alarm filtering & correlation	4.21
Support for distributed management domains	3.83
Ability to use platform's autodiscovery features to create network map	3.81
Price	3.51
Development tools for building add-on programs	3.11

Who is/will be your preferred supplier of network management integration software?

(Based on 77 responses)

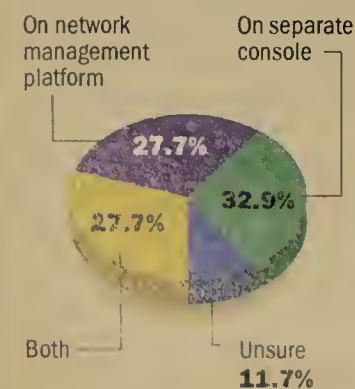


Which management platform do/will you use?



Where do/will you run net management integration software?

(Based on 76 responses)



Focus Data, an independent market research firm in Framingham, Mass., conducted this survey. Focus Data is preparing a full report on user trends in network management applications. For more information about Focus Data services, call Mona Dabbon at (508) 626-2556 or send E-mail via the Internet to mdabbon@focusdata.ultranet.com.

not fully exploit sophisticated event filtering and routing capabilities provided by the underlying platform.

By providing development tools to third parties, MOM application vendors are essentially positioning their environments as extensible meta-platforms in competition with the likes of IBM, HP and SunSoft.

Most MOMs provide APIs, scripting tools, process libraries and development tools to link user-developed and third-party programs into their management environments.

However, MOM vendors lag well behind platform vendors in the range of development tools and level of support they provide to independent software developers.

Application developers for some of the MOM environments may be few and far between, which could require a considerable investment in staff training and development.

And yet, Boole & Babbage's Command/Post customizability appealed to Sprint Corp., says Dave Karthaus, technical analyst with the long-distance carrier in Irving, Texas.

Sprint has customized Command/Post to consolidate management of diverse platforms—including IBM's NetView/360 (running on a mainframe)—six HP OpenView consoles, and element managers for its Network Equipment Technologies, Inc. IDNX-based WAN and, nationwide, Apple Computer, Inc.'s AppleTalk network. Sprint has used Command/Post to write custom scripts that support filter-

ing of spurious alerts and in-depth remote diagnostics.

Bridgeway's EventIX is another of the more development-oriented MOMs. EventIX supports integration of third-party platforms and element managers via proxy agents. An object-oriented, rule-based application generator allows users to build programs quickly through point-and-click GUI dialog boxes. Tools are provided for building SNMP proxy agents, MIB objects, data repositories,

STRONG SECURITY

In contrast to management integration applications, network management platforms offer robust security features. These features are provided by the platform vendors or from any number of third parties, reflecting the switch-hitting nature of most platforms: part network manager and part data center manager.

network maps and interapplication coordination routines.

As could be expected, Seagate—via its NetLabs acquisition—also provides strong application development tools. Using the NetLabs/Vision Development Environment and Engine, third parties can build Unix-based SNMP managers that run under NerveCenter, HP's OpenView, IBM's NetView/AIX, SunSoft's SunNet Manager, or completely

separate from any platform.

Users should not view MOM applications and platform suites as mutually exclusive solutions for enterprise network management.

MOM applications will probably never entirely supplant platforms in most companies because of the superior functional breadth, scalability and third-party application support that platforms offer.

But MOMs will grow to resemble management platforms through expanded functionality and third-party development support.

By the same token, platforms will evolve through tighter integration with other vendors' management environments to blur the current distinction between them and MOMs.

For most enterprise networks, there is no one application suite, platform or console available today that will enable you to monitor and control everything. Unfortunately, there probably never will be such a beast.

So, when you weigh MOM applications against management platform suites, your best tactic is to find suites that help you bring a vast galaxy of legacy management environments and distributed systems into sharper focus.

Kobielus is a Network World contributing editor and a senior telecommunications analyst with LCC, Inc., an Arlington, Va.-based network design and engineering firm. He can be reached via the Internet at kobielus_james@lccinc.com or by phone at (703) 807-5075.

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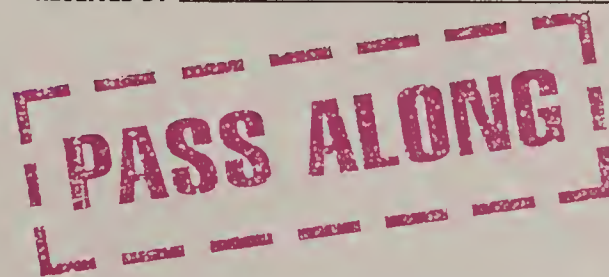
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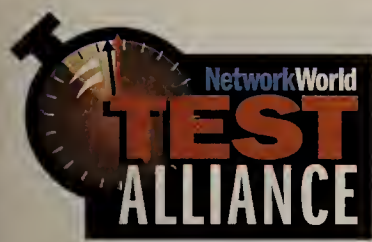
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Finally, a tool to bring a full range of telephony services to NetWare.

Beyond voice mail

By
Steve Kalman

NetResults

Product
CallWare

Pros

- ▲ Rich feature set.
- ▲ Well-designed GUI.
- ▲ Can be integrated with and managed by NDS.
- ▲ Supports TSAPI.

Cons

- ▼ Updating an NDS tree's schema prevents administrators from merging trees unless the others to be merged are also updated.
- ▼ LAN managers must learn telecommunications manager tasks, such as extension and mailbox management.
- ▼ A heavily used system takes up disk space quickly.

Vendor

CallWare Technologies, Inc.
2323 Foothill Drive
Salt Lake City, Utah 84109
Phone: (801) 486-9922
Fax: (801) 486-8294
E-mail:
75053.350@compuserve.com

Price

\$2,995 for 25-user license
\$69,995 for 10,000-user license

When you marry the power of a computer to the convenience of a telephone, the union produces more than just voice mail. That's what we found with CallWare, a NetWare client/server application from CallWare Technologies, Inc. that provides an automated attendant, audiotext, customized mailboxes and tenant services.

While many voice mail systems have a few of these features, only an application like CallWare, which features computer-telephone integration, can incorporate all of them — and do it on a LAN, to boot.

We installed CallWare on our NetWare LAN after hooking the server up to the required voice switching hardware. For this dyed-in-the-wool LAN administrator, setting up a telephone switch and connecting it to a server was a bit intimidating at first, but the excellent documentation and technical support that came with CallWare made it a breeze.

Setting up voice mailboxes was somewhat tedious and repetitious, but the software lets

administrators create template mailboxes and use them for similarly configured users, which helped a little. Leaving messages was simple, but retrieving them was where CallWare really shined. The software makes it easy to listen to messages in any order or to save them for later review.

CallWare's back end runs as a set of NetWare Loadable Modules (NLM) on a NetWare 3.X or 4.X server. The server is attached to a private branch exchange via a serial connection or Station Message Desk Interface port, a specialized access port that a few vendors use, or by regular RJ-11 extension cords, depending on the make and model of the telephone switch (see graphic, page 44). On the client side, a Windows application called ViewPoint communicates with the NLMs.

When a user invokes ViewPoint, the program displays a line of data showing each pending message (see screen shot). An open or closed envelope icon indicates whether a waiting message has been heard yet. ViewPoint also shows the name of the caller if the call came from inside

the company or the notation "outside caller," for calls coming from outside the company, along with a phone number identifying the call (making it easy to distinguish several calls from the same colleague). The date, time and duration of the call are displayed for both types of calls.

With a graphical user interface (GUI), users can easily and intuitively access the voice mail system, retrieve messages, send a message to a group of people or do routine maintenance such as deleting or saving messages.

To retrieve voice mail, users select a message on the screen. ViewPoint sends a command to the file server, which then forwards PBX signaling instructions to tell the switch which extension to dial. When the user picks up the phone, CallWare plays the message stored on one of the server's volumes.

Usually, users access their mailboxes from their own workstations. In that case, they just launch the application and give a numeric passcode. If they happen to be at another workstation anywhere on the network, users can give the extension of the nearest telephone. When they ask that a message be played back, the specified phone rings and delivers the message.

Workstation-to-PBX communication is bidirectional. For example, if a user clicks on the Hang-up icon on the ViewPoint screen, a message is sent to the

From	Number	Date	Time	Length
R CRAIG HANSEN	8902	Thu 1/12/95	7:14 AM	46 s
LYNDA RANSOM	8911	Sat 1/14/95	1:34 PM	39 s
STEVE SHUMWAY	8974	Sat 1/14/95	10:23 AM	15 s
Outside Caller		Sun 1/15/95	4:02 PM	39 s
Outside Caller		Mon 1/16/95	9:04 AM	4 s
TY HATCH	8916	Mon 1/16/95	9:06 AM	4 s
CURTIS HADLEY	8920	Mon 1/16/95	9:07 AM	4 s
MAKOTO NAKAYAMA	8929	Mon 1/16/95	9:08 AM	3 s
KYLE JOHNSON	8936	Mon 1/16/95	9:09 AM	4 s
ROBERTO PEREZ	8934	Mon 1/16/95	9:08 AM	3 s
SHARON MACDONALD	8937	Mon 1/16/95	9:07 AM	3 s
SPENCER POWELL	8906	Mon 1/16/95	9:05 AM	5 s
SUSAN LLOYD	8904	Mon 1/16/95	8:53 AM	5 s
CINDY SWENSEN	8901	Mon 1/16/95	8:52 AM	4 s
KEN THOMAS	8921	Mon 1/16/95	8:51 AM	6 s

ViewPoint displays the date, time and duration of each call, with an indication of whether it's been played.

server asking it to tell the switch to disconnect the call. Alternately, if the user hangs up the phone, the switch notifies the server, which sends a message to the computer telling it to gray-out the Hang-up icon.

Users can select incoming messages in any order from ViewPoint's GUI and can sort the list by callers' extensions, if the calls originate within the company, or by phone number, when caller ID is used.

Users save messages by dropping them into a saved mailbox or discard them by clicking on a trash can icon. If the user does nothing with the messages, they are still counted as new messages when the user calls in to retrieve them from the outside. Deleted messages are saved until a user exits ViewPoint. After that, they can be salvaged using typical NetWare utilities.

Automating the receptionist

CallWare uses an automated attendant feature to help get callers to the proper system feature or voice mailbox. The auto-

Continued on page 44

Sizing up voice cards

When sizing telephony cards for use in a server, the important issue is how many simultaneous users will be accessing voice mail, not how many mailboxes there are. A good rule of thumb is one line for every 15 users in small systems, with the ratio increasing as the number of users increases. A 48-port system should be able to support 1,500 to 2,000 users.



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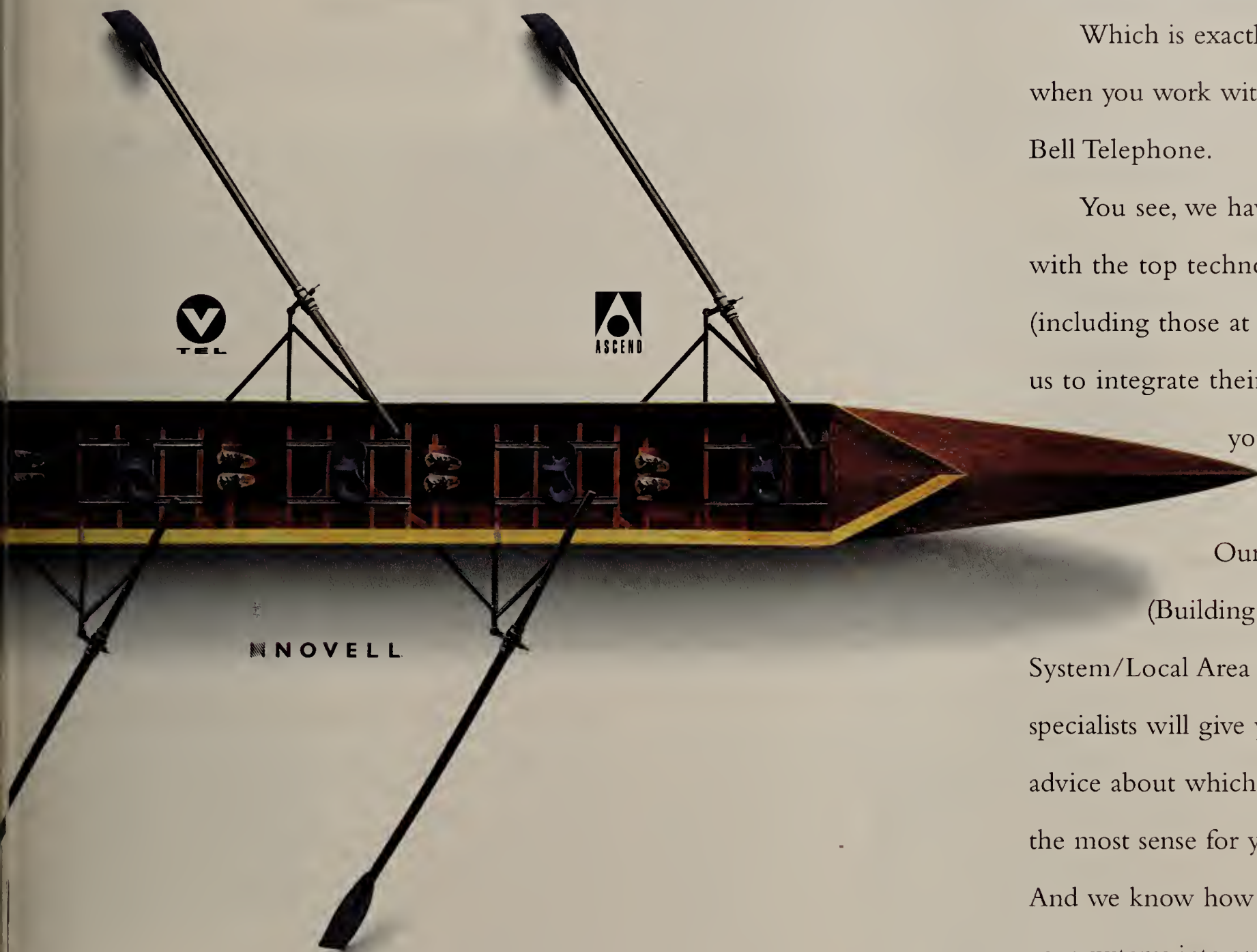
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Continued from page 41

ated attendant feature is used to answer all incoming calls, instructs callers to key in an extension and transfers the call to the specified phone. If the caller needs a directory, the automated attendant switches to the directory lookup function. If there is no answer on the dialed

HOW WE DID IT

We installed a Rhetorex, Inc. four-port telephony board into our Dell 486P/25 486DX-25 file server running NetWare 4.1 and attached a Sprint Products Group, Inc. Protege switch (a mini-PBX) to the Rhetorex card using regular phone cable. We then loaded the CallWare software onto the server and the ViewPoint user software onto two networked workstations.

We created mailboxes and extension numbers, and recorded several greetings for various times of day and for different users. We accessed our messages from our workstations, and we called from outside lines to retrieve old messages and leave new ones.

extension, the call is routed to voice mail, where a pager message or other call escalation function can be triggered. Call escalation, based on user-defined rules, provides additional handling for messages based on reception status, caller or other criteria.

For example, when a message has not been retrieved by a specified time or the number of messages in the mailbox exceeds a user-defined threshold, CallWare can send or copy the messages to an alternative mailbox, or it can alert a pager.

There's even a way for sophisticated voice mail users to get some fringe benefits from the system. With the message notification feature, users can ask the system to send a page at a predetermined time, whereby the system calls their pager.

Because the automated attendant knows what time it is when users call, administrators can record a series of announcements for certain times of the day or for certain days. The maximum capacity is six messages a day for one week. So, for instance, an administrator can define announcements for the evening, weekend and workday.

Users can also record their own messages and specify an action for CallWare to take, rang-

ing from just taking a message or transferring to another extension—an assistant, perhaps—to initiating pager notification. By combining the right message with the right action, users have a remarkably flexible message handling system.

Another feature, audiotext, plays prerecorded messages to callers via push-button menus. This is useful for help desk or technical support departments, which can record answers to frequently asked questions.

Directory search is a feature that can help those who call a firm but don't know the extension of the person they want to reach. The program prompts callers to enter the first few letters of the person's last name. If the letters are unique within its database, CallWare interrupts and makes the connection. When multiple people match the letters keyed in, CallWare generates a menu on the fly.

For example, the directory will tell callers that Adam Johnson is at Ext. 1250 and that they can press 8 to transfer to that extension or press 7 for the next name. Administrators can add entries for departments that enable callers to reach a contact person in sales or accounting when they don't know the name of a specific person.

Tenant services is a special feature for organizations that host other companies, such as with malls and office buildings, or even smaller companies, where one owner runs several businesses out of one office. An administrator can assign a range of extensions to one tenant and a different range to another.

All the escalation, directory search and audiotext functions can be segregated so that callers never know that they're accessing a single, shared system. This gives the umbrella organization the choice of making voice mail services available to tenants either at a profit or as a general benefit to attract new tenants. Time-of-day-based messages can be set separately for each tenant.

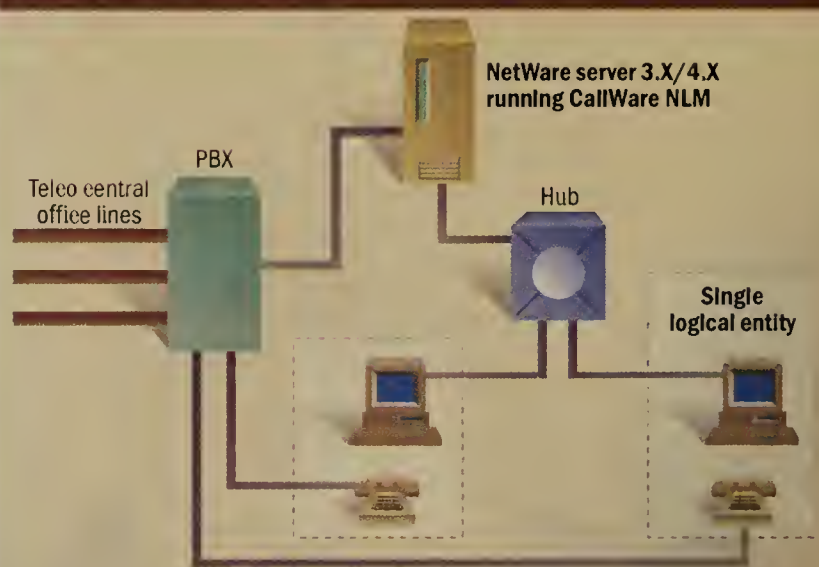
Installation

CallWare installation was simple. Our first step was to install a voice board into our file server. Our test unit had a Rhetorex, Inc. four-port ISA card.

We loaded the CallWare software onto the NetWare 4.1 server and connected our Sprint Products Group, Inc. Protege PBX to the file server using a regular RJ-11 phone cable. If we were doing this at a site with dozens of phone lines, we probably would have used a serial connection to a bigger phone switch.

After that, we loaded the workstations with ViewPoint.

CallWare brings CTI to NetWare



CallWare logically integrates voice and data cabling systems at the desktop.

We had to create voice mailboxes, assign passcodes and record some standard and user-specific messages. That took about an hour for the small test environment we set up. Although it was a bit tedious, it was quite simple—about as difficult as creating new NetWare users via Syscon. A template creation option lets administrators establish a standard setup and then create new users modeled from the template. It is possible to make several templates.

Those using NetWare 4.1 have it easier than their 3.X counterparts. During installation, CallWare modifies the NetWare Directory Services schema, its list of objects and properties. After installation is complete, the schema includes about a dozen new properties—such as passcode, message escalation time and pager number—that enable administrators to set up and manage user voice mailboxes and distribution lists using Nwadmin under Windows.

Each second of a voice message takes up 22K bits of server disk space, so a typical 20-second message consumes about 55K bytes. Without a large storage

subsystem, this can quickly become a drain on server resources.

CallWare does not include integration with faxback applications, but the company plans to include such capabilities in a future release.

Firms today have two physically separate infrastructures running side by side in their offices. One handles voice and the other is dedicated to data.

CallWare is the leader of the first wave of products that will merge those systems into one. ■

The alliance is a cooperative of users, consultants, educators and integrators that applies its technical and business skills to analyze and compare strategic network products. A list of alliance partners can be found on page 35.



Kalman is a partner at TigerTeam, a consulting firm specializing in helping corporations migrate to the new Windows platforms. He can be reached via E-mail at 75136.360@compuserve.com.

TSAPI or TAPI?

Novell, Inc. sells separately from NetWare its Telephony Services Application Programming Interface (TSAPI), whose main component is TSAPI.NLM. It was jointly developed by Novell and AT&T to do call processing, a telecommunications industry term that encompasses all the features of modern business phones, such as dialing and speed dialing, transferring calls, conference calling and three-way calling. TSAPI is not necessary to run CallWare, however.

Nearly all private branch exchanges made during the past five years support TSAPI, but most people are still using PBXs made before TSAPI hit the scene.

CallWare must use either a driver program or TSAPI to manage a switch. The product comes with a long list of drivers for supported switches. By using TSAPI, you can do third-party call control, a telecommunications phrase that means activating the call processing features provided by TSAPI. Call control can even include screen-pops on incoming calls. In other words, you can use your PC to manage active calls instead of just managing messages.

Installing TSAPI is as easy as running the NetWare Loadable Module. Third-party applications that do call control via TSAPI include Aurora, Inc.'s FastCall, Q.SYS, Inc.'s PhoneWare and AnswerSoft, Inc.'s SoftPhone.

CallWare Technologies decided to go with Novell's TSAPI rather than Microsoft Corp.'s Telephony Application Programming Interface (TAPI). TAPI assumes that every workstation has a telephony capability, while TSAPI assumes that the telephony hardware is at the server, which is connected to the PBX. This philosophy comes from the notion that expensive telephony boards such as text-to-speech or multiport PBX-on-a-board cards can only be cost-justified if they are shared by the masses.

However, centralized sites that acquire TAPI-compliant software, which looks for a telephony card in a PC, can get a program called TMAP from Northern Telecom, Inc. It spoofs the driver that TAPI expects and communicates with TSAPI at the server in a way that's similar to a communications application.

NETWORK HELP DESK

Continued from page 33

private key.

ViaCrypt PGP also provides message authentication by using the sender's private key to create a digital signature of a file or message, which proves that the sender is the originator and the file or message has not been altered by anyone.

While ViaCrypt PGP is a commercial product, there are many sources of information about PGP, including *The Official PGP User's Guide* (The MIT Press, 1995) by Philip Zimmermann, the creator of PGP; *Protect Your Privacy: A Guide for PGP Users* (Prentice

Hall Publishers, 1994) by William Stallings; and *PGP: Pretty Good Privacy* (O'Reilly & Associates, Inc., 1994) by Simson Garfinkel, which covers the history and controversy surrounding PGP.

If you want to download PGP free-ware, point your Web browser at <http://web.mit.edu/network/pgpform.html>.

You can find links to a lot of PGP-related information by pointing your Web browser at <http://draco.centerline.com:8080/~franl/pgp/>. For more information, call O'Reilly & Associates at (800) 998-9938, Prentice Hall at (800) 922-0579 or ViaCrypt at (800) 536-2664. You can also contact ViaCrypt by E-mail at viacrypt@acm.org or point your Web browser at <http://www.getnet.com/viacrypt/>. ■



In-box

Continued from page 35

common is they both use copper alloy.

Considering that the practical limit for a properly designed Ethernet cable link is well under a mile over optimum cabling, it's very hard to swallow the idea that this technology could yield throughput of 2K to 3K bit/sec, let alone 2M to 3M bit/sec. What kind of signal processing, and at what cost, can achieve the results Gold describes?

Even supposing this absurd idea was correct for a moment, how practical would it be for 10,000 NetWare users in the suburbs of Chicago to unpredictably connect 20 miles to 1,000 offices in Chicago? This is my idea of a "few users" in the context of the story.

Paul Schmied
Assistant manager
Emergency 24, Inc.
Chicago

Editor's reply: Many of the problems you cite have been addressed by home-automation vendors, which have been using low-bandwidth LAN protocols such as CEBus and LonWorks for years to link remote control and intelligent devices across power lines in the home. Novell's technology is designed to provide short-distance LAN connections between homes or small offices and WAN backbones maintained by utilities, cable companies, or telecommunications providers.

As described in the story, Powerline Technology traffic would run across low-power lines from a home to a router on a utility pole, which would split Ethernet traffic onto a fiber or other WAN backbone, and let electric current through to a transformer and back onto the power grid.

LAN traffic would not travel through transformers or cross long distances on power lines.

Who changed the network?

Daniel Briere and Christine Heckart's column "V.34 modems hit digital potholes" (July 3, page 18) is troubling.

It seems someone has changed the telephone network while I was out. The network no longer uses pulse code modulation (PCM)? Has something new happened to adaptive differential PCM (ADPCM) that would have eliminated its bandwidth limitations?

Unless I have been truly out of touch, the standard analog phone line still relies on PCM at the central office and has for 50 years or so — certainly ever since digital telephone transmission became standard. Since the symbol rate of PCM-encoded telephone data is 64K bit/sec, data transmission rates will necessarily be limited to something less than that. Multiple PCM hops — conversions from analog to digital to analog — will certainly degrade network performance.

The symbol rate of ADPCM, 32K bit/sec, will produce even more restrictive limits on data transmission.

I'm afraid the column doesn't make these points clear. It leaves the impression that there is some defect endemic to V.34 modems, instead of making the point that the telephone network infrastructure produces its own limitations. Furthermore, if manufacturers' products are

identified, at least indicate which produced the best results and which didn't work at all.

Also, when discussing modems, please discriminate between data communications equipment/data terminal equipment (DTE) rate or throughput, and symbol or line rate. Although most of the article seems to refer to symbol rates, the quoted transmission rate for a graphics file — 5,990 characters per second, or 47,920 bit/sec — must have referred to the DTE rate.

The column says that "New digital, network-friendly algorithms will boost connect speeds and throughput." When will we have these on our analog phone lines, or, more to the point, what does digital transmission have to do with modems? What companies are going to provide upgrades for their modems to digital transmission capabilities?

Paul Beck
Senior systems engineer
Manassas Systems Integration Corp.
Manassas, Va.

Briere and Heckart respond: The column was not meant to indict V.34 modems or the carriers. Rather, we wanted users to understand what they could expect from these products.

One of the biggest complaints from users is that they plug in a 28.8K bit/sec modem and watch the display say anything but 28.8K bit/sec.

We are limited in what we can cover in one of our 550-word columns. However, we will be covering a lot of the specific vendors' performance results in future columns, feature articles and on-line.

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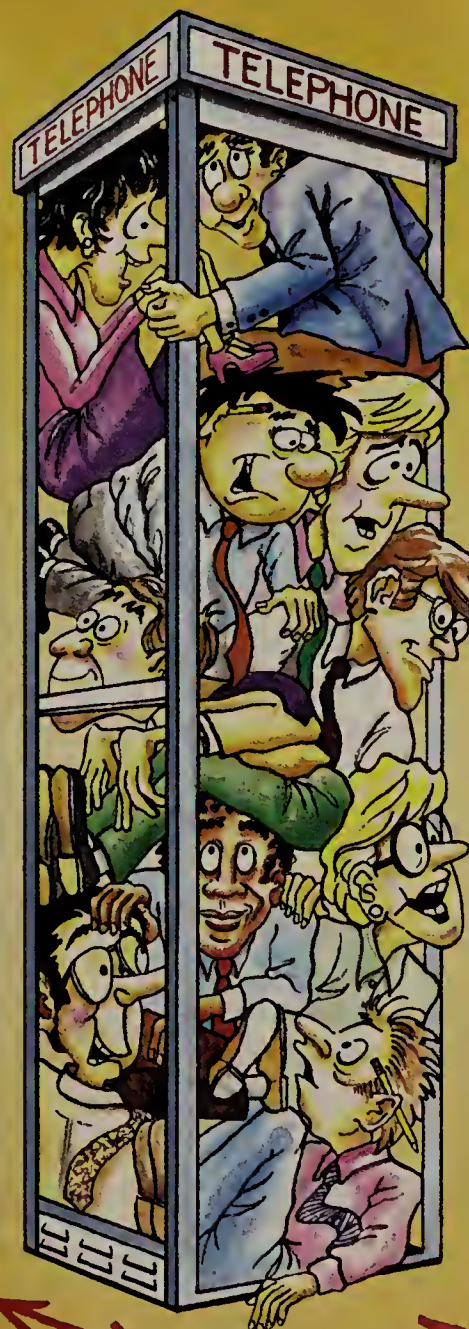
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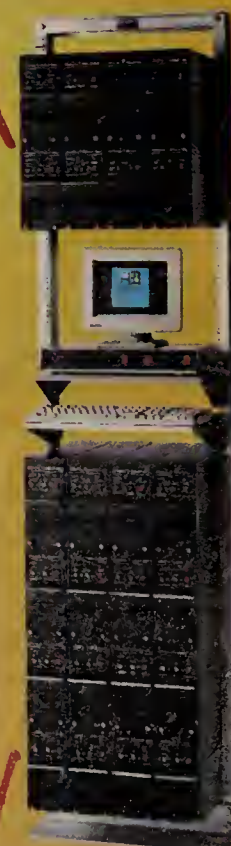


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Circle Reader Service #29

Management Strategies

Covering: Career Insights and Innovations
in Managing Staff, Budgets and Technology

Briefs

■ **Creative Networks, Inc.** has published a report aimed at helping users build a business case for installing groupware. **"Groupware: Myths and Realities"** provides methodologies for identifying the business need for groupware and covers what users need to know to evaluate the products, as well as implement a migration strategy to groupware. The report draws on five case studies for real-life examples.

Creative Networks is charging \$495 for the report. The company can be reached on the Internet at 6539247@mci-mail.com or by phone at (415) 326-9926.

■ During the next few months, high-ranking **Novell, Inc.** executives will take part in on-line conferences on **CompuServe**.

The executives will answer users' questions concerning a migration to NetWare 4.1. On CompuServe, enter GO NETWAR4 for more information. Here is a schedule for the next three conferences:

■ Robert Frankenberg, chief executive officer, Aug. 15 at 3 p.m. Eastern Daylight Time (EDT).

■ Joe Marengi, executive vice president of worldwide sales, Aug. 31 at 4 p.m. EDT.

■ Drew Major, chief technical officer, Sept. 14 at 4 p.m. EDT.

■ **SkillTech Professional Seminars**, a division of Softbank Institute, this fall is conducting a series of **"How to Provide Effective User Support"** classes.

The classes teach the latest problem-solving techniques to help desk personnel and computer training specialists. For example, the classes will prepare help desk staff to troubleshoot LAN and distributing computing problems, as well as teach them how to use prepackaged databases of knowledge to solve problems.

Two-day classes cost \$695.

SkillTech Professional Seminars: (800) 348-7246

Don't be denied your 'Net service rights

By repeatedly sending even the simplest of messages, hackers can effectively clog your vital Internet arteries.

By Winn Schwartau

Corporate America is flocking to the Internet in droves, but many companies are failing to watch out for and protect against hack attacks that can deny them access to their service.

In much the same way that repeated dialing can keep a telephone line busy, a hacker can deny you Internet service by sending you a flood of useless messages. Denial of Internet service can take many other forms, too, ranging from natural or man-made disasters that knock out network links to Internet write once, read many (WORM) viruses that slow communications to a snail's pace.

In fact, the WORM Robert Morris unleashed in 1988 was the first major denial-of-service event to affect the Internet. Since then, hackers have known that sending unwanted messages is one way to get around more sophisticated security measures, such as firewalls, and essentially freeze you out of the Internet.

At a recent hacker conference in England, a firewall company brought its wares for the hackers to beat on. When they couldn't break in, the frustrated hackers did the next best thing: They launched an effective denial-of-service attack that simply blocked messages from getting to the firewall-protected site.

I experienced a denial-of-service event recently when I found myself in an odd game of electronic mail Ping-Pong with a client in Massachusetts. His Internet E-mail to me was getting bounced back to him undelivered, while the same was happening with my mail to him.

The rest of our respective E-mail was working just fine. So we set up a conference call to my service provider who found a routing problem in California that, for some inexplicable reason, interfered with our East Coast traffic. The problem was fixed in minutes.

One of the hacker's best allies

Book review

New guide helps managers assess how their nets stack up

By Dana Thorat

Managers looking to craft standard benchmarks for measuring network department performance may find Positive Support Review, Inc.'s (PSR) *Information Systems, Communication and Data Processing Metrics HandiGuide* a valuable resource.

The management consulting firm's book contains more than 150 sample metrics that can be deployed to measure the effectiveness of several departmental functions, including staffing, productivity, system development, quality assurance and help desk operations.

The book steps managers through the process of generating reports for more than 50 topics, including LAN analysis, PC usage trends, voice mail performance, switch performance, staff turnover, staff performance feedbacks and capital expendi-

ture roundups.

The book also advises net managers about which type of report to prepare for various audiences, such as the chief information officer, customer operating group management and senior management.

Another section of the book provides an implementation plan with key rules to follow when including metrics in service-level agreements with vendors and internal customers.

The book costs \$395. A software-based version of the book that can generate metrics and reports in Microsoft Excel spreadsheets or Microsoft Word for Windows documents is available for \$795.

For more information, call PSR at (310) 453-6100 or point your Web browser at <http://www.psrinc.com/METRICS1.HTM>.

Denial of service dossier

Denial of service — An event caused by a disaster or hacker that prevents you from sending or receiving messages on the Internet or other networks

Examples:

- The World Trade Center bombing denied service to hundreds of businesses.
- The 1993 No-Name Storm of the Century for weeks denied automated teller machine services to millions of Northeast banking customers.
- This spring, two New York airports were denied service three times because of power and communications system failures.
- Robert Morris sent write once, read many viruses in 1988 that consumed Internet bandwidth, effectively blocking essential messages from getting through.

Why the issue is ignored: Users seem more concerned with keeping messages confidential to protect secrets and provide message integrity that ensures data is not purposely or accidentally altered.

What you can do:

- Work with your service provider to have backup plans in place to reroute traffic around failed links.
- Ask your service provider to monitor traffic, and take some predefined action when an anomalous volume of traffic is detected.

in creating unwanted traffic is a common software utility called PING, which determines if a particular IP address is active and available for E-mail, file transfer or Web browsing. PING sends out a small packet of 64 bytes. If the intended destination is online, an echo response will return saying everything is OK.

Just like repeatedly dialing a phone number keeps that line busy, sending out a long — or endless — sequence of PINGs will keep an Internet resource busy.

If several netizens get together and PING the same Internet address at the same time, the available bandwidth to that site gets consumed and other traffic is either delayed or bounced back to the sender.

The PINGing problem

PING software can be modified to be a royal pain. The timing can be altered to send out hundreds of thousands of PINGs every second, and even large sites could find their 'Net access come to a grinding halt. When businesses depend upon the Internet for their day-to-day affairs, such an openly antagonistic denial-of-service attack is more than annoying: It becomes as expensive and debilitating as losing telephone service.

Changing your IP address is as useless as changing your 800 number. If you're in business on the 'Net, you want everyone to

know how to reach you. So you're left with the unenviable task of tracking down the offending party.

With the right firewall, you might be able to get a handle on the perpetrator, but the hacker can modify his source address and lead you down countless virtual blind alleys.

A defensive tactic

A better approach is to team up with your Internet service provider, which routinely monitors traffic in and out of your site and has a vested interest in keeping you happy. Using sophisticated monitoring tools, the service provider can look for anomalous behavior, such as endless PINGs or mail bombs — a series of nonsense messages all addressed to the same person — and react on your behalf.

If denial of service to your Internet site is a concern to your organization, talk to your provider and ask what services and programs they have to address this problem. Like everything else about security, it's far better to be prepared than to be a victim.

Schwartau is executive director of Inter.Pact, Inc., an information security and electronic privacy consultancy, and is editor of "Security Insider Report," a monthly newsletter. He can be reached at (813) 393-6600 or via the Internet at winn@infowar.com.

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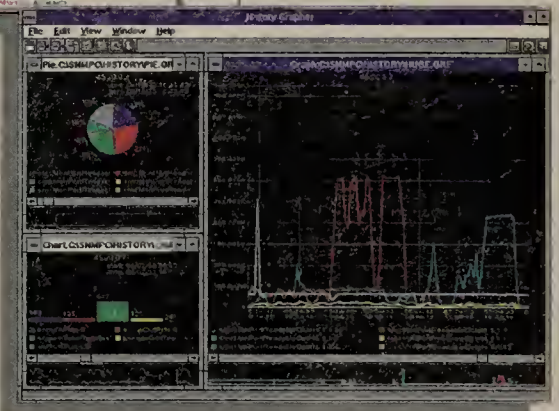
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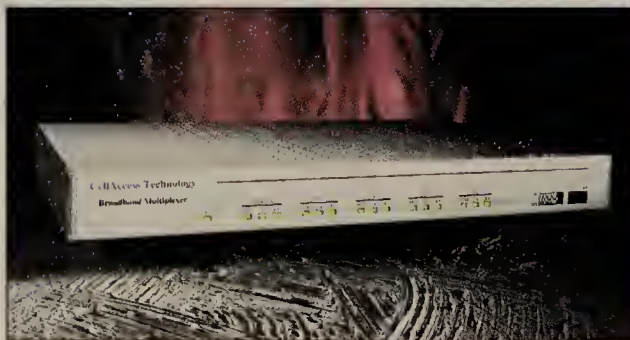
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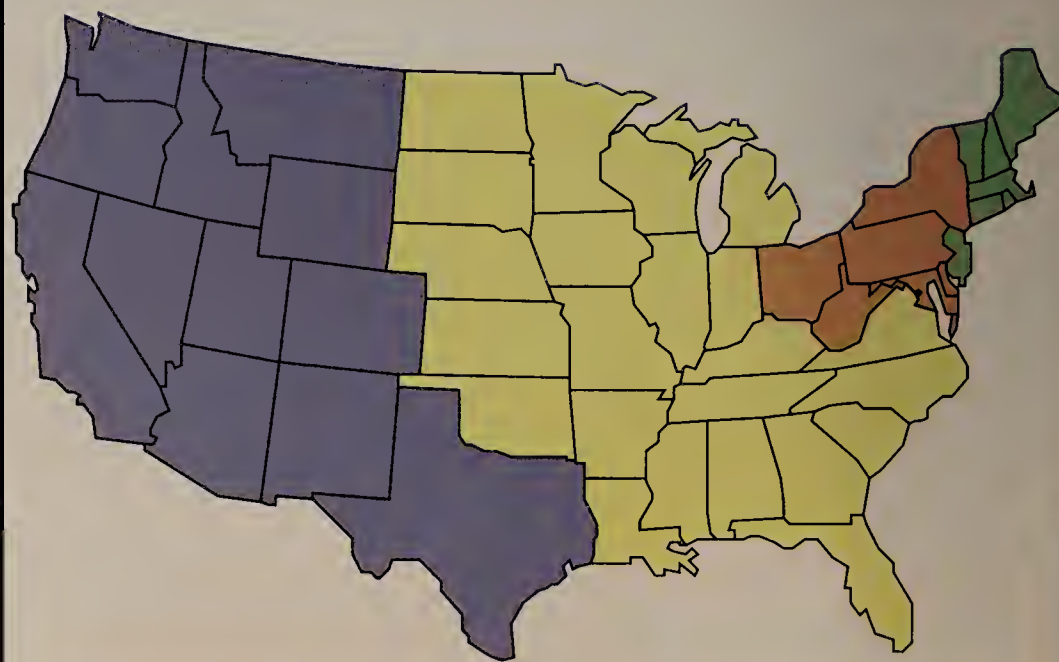
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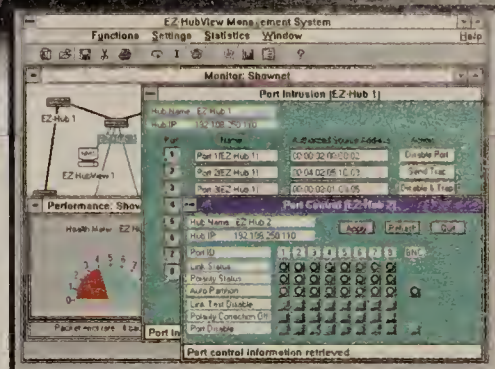
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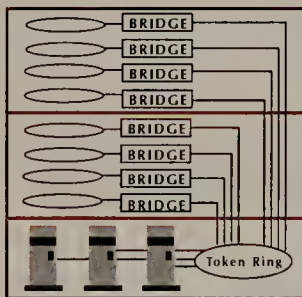
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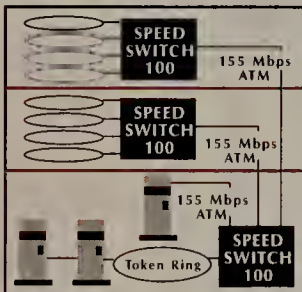
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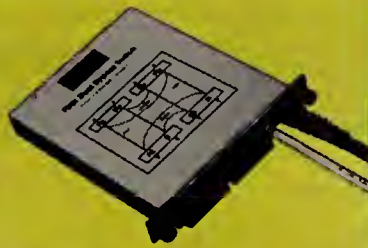
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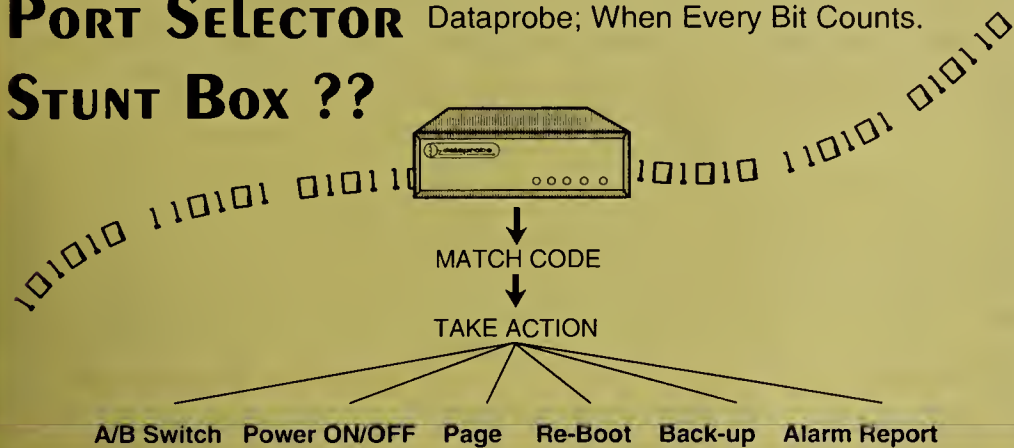
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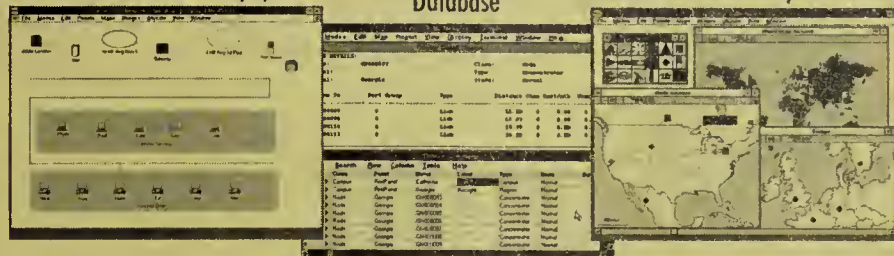
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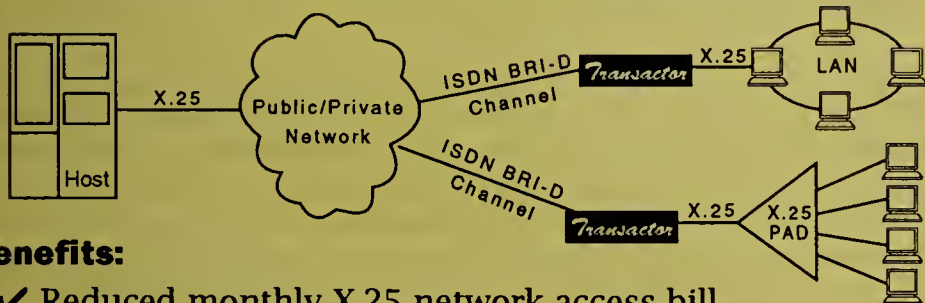
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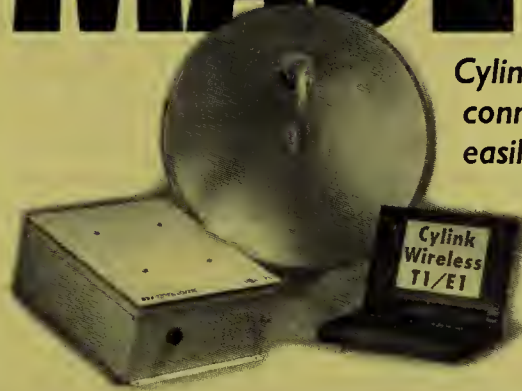
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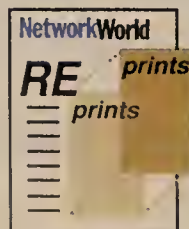
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NT scores

Continued from page 1

everything," Hetrick said of Union Carbide's scattered installations. "Although I haven't found any CP/M yet," he joked.

The Union Carbide network will include 100 Windows NT servers running on industrial-strength multiprocessor Compaq Computer Corp. servers running Microsoft's BackOffice applications suite. These will connect mostly to Pentium-based Compaqs and a few 486 clone workstations running Windows 95 and Office 95.

The man behind the overhaul is Chief Information Officer John Gigerich, who two years ago brought to Union Carbide the same philosophy of standardizing and outsourcing that he practiced at Continental Bank in Illinois. His commitment to Microsoft's networking technology, which will include an upgrade to Windows NT successor, Cairo, when it is available, is considered a strategic decision that will serve Union Carbide through the turn of the century.

The project is also the first major result of Microsoft's contract with Vanstar to help the software company break into the corporate enterprise market, said Robert McDowell, vice president of Microsoft's Enterprise Customer division. He said the Union Carbide project is one of Windows NT's biggest installations.

Site work

At Union Carbide, most sites will have at least one Windows NT server, which will then be linked by a frame relay WAN in a hub-and-spoke configuration. Each site will connect to the nearest data center, in either Charleston, N.C., or Houston.

A few of the smaller sites will connect directly to the Ethernet WAN for any needed server data.

Routers will also be overhauled. Union Carbide is installing new high-speed Cisco Systems, Inc. routers, replacing the Bay Networks, Inc. and older Wellfleet equipment now in place.

They will also assign TCP/IP addresses throughout the WAN — something that was not feasible with Union Carbide's previous mixture of Unix, LAN Manager, VINES and NetWare networks.

The entire process is a rolling installation, explained a Union Carbide engineer assisting in the effort. The engineering team, in one fell swoop, replaces a site's or workgroup's computers with new preconfigured desk to systems. They take the old machines to a redeployment

center to assess whether they can be upgraded or retrofitted and used elsewhere. Macintoshes, for example, will not get reassigned — although a few Macintosh enclaves may remain in some specialized areas of the company for a while.

The job is both ambitious and well staffed. More than 100 engineers from Microsoft, Vanstar and Union Carbide are involved, plus about two dozen support technicians working on help desks and training.

These folks are working fast

"We've already rolled out a good part of the BackOffice infrastructure and even some of the Windows 95 desktops," Van-

Winners and losers

	WHAT'S IN	WHAT'S OUT
Network OS	Windows NT	NetWare, Unix
Desktop OS	Windows 95	Mac
Routers	Cisco	Bay Networks
Systems	Compaq	Clones, PS/2s
Applications	Office 95 and BackOffice	A mixed bag

star's Hetrick said. Union Carbide is participating in Microsoft's Early Migration Program and already has final Windows 95 code to install.

Plans call for completion by early 1996 — and it's that late largely because Microsoft Exchange Server, scheduled to ship by year-end, is also part of the plan. The company will use Microsoft Mail until then. ■

New DataHub manages multivendor Unix databases

By John Cox

IBM will this month ship DataHub for Unix, a product designed to give administrators a consistent graphical tool for managing both IBM and non-IBM client/server databases.

DataHub for Unix consists of a workstation-based graphical display and a DB2/6000 database. It also includes small programs, called agents or daemons, that run on the remote systems, watching both the database server and the underlying operating system.

In response to events, such as exceeding a CPU utilization threshold, the daemons notify

the management workstation, which references a set of rules about what action to take or whom to notify.

IBM said it will eventually support Microsoft Corp. operating system platforms and merge DataHub for Unix with its earlier, separate product, DataHub for OS/2, which can manage the full range of IBM DB2 platforms, from OS/2 to MVS.

A package with one workstation control point and five managed hosts costs \$12,500. The initial release will support DB2 for AIX, Oracle 7 and Sybase System 10, as well as AIX, HP-UX and Solaris operating systems. ■

Net pros

Continued from page 1

leased just over a week ago. Its concept is more intriguing than the movie itself: A programmer, played by Sandra Bullock, stumbles onto information about a conspiracy to infiltrate and control America's corporate and government networks.

The bad guys start using networks to kill everyone Bullock contacts. Even worse — and here's the really neat part — they delete her identity, which is contained in computer files kept by government agencies, banks, video rental stores, drug stores and hospitals, and replace it with that of a drug-addicted prostitute wanted by the police for theft and other crimes.

The Net joins other recent movies, including *Sneakers*, about another plot by corporate barracudas that are foiled by good hackers led by aging hippy Robert Redford, and *Disclosure*, where electronic mail provides some vital plot information to Michael Douglas, who's trying to protect himself from his vengeful paramour and boss, played by Demi Moore.

Last weekend saw the release of *Virtuosity*, about a serial killer program — used to train police — that escapes from the network and has to be hunted down by Denzel Washington. And later this year, expect the movie version of the book *Hackers*.

To some, all this attention means the 'Net and networking in general is getting a bad rap. "Anytime the 'Net is portrayed as being used by evildoers for evil purposes, it gives the public a very negative view that isn't reality," said Shari Steele, director of legal services at Electronic Frontier Foundation, a Washington, D.C. nonprofit group that

focuses on civil liberty issues and emerging technologies.

"Most of the communications [on the Internet] are wonderfully enriching and not evil in anyway," she added.

Internet users, responding to queries posted on a couple of Usenet groups, were more pointed in their criticisms.

"There wasn't much Internet in it," wrote David Cassell (destiny@crl.com). "And it wasn't a very good thriller. . . The movie didn't make me want to go out and surf the 'Net. It made me want to go out and bash the mass media." ■

Added Mike Muise (@novice.uwaterloo.ca), "[Networking technologies] are portrayed the way most difficult concepts are portrayed in mass media — poorly."

Hollywood spices up networking with special effects, virtual reality and so on, which makes the movie boring for technical people "but instills fear and general ignorance in everyone else," he wrote.

But *Time* magazine film critic Richard Schickel, who was moderately pleased with *The Net*, said Hollywood is not so much instilling, as reflecting, those fears.

"[The movies] reflect a certain anxiety people have about how this [technology] could change our lives for the worst," he said.

So, technically sloppy movies evoke deep, dark, barely articulated fears along with some wildly soaring utopian hopes. That doesn't sound like a phenomenon that will put corporate network managers on the A list for the party circuit and win them invitations to appear on *David Letterman*, let alone *The MacNeil-Lehrer Report*.

But *Cyberspace Yakuza* could change all that. Get Stallone on Line 1. ■

Abend's top 10 networking movies of all time

Compiled by Adam Gaffin with help from alt.folklore.computers and rec.arts.movies.lists+surveys.

1 Brazil (1985)

A bug in the network has tragic consequences in this tale of IS run amok.

2 Clear and Present Danger (1994)

A CIA operative, played by Harrison Ford, thinks he uncovers an evil plot when he calls up another operative's files across a LAN; instead, he runs afoul of the Electronic Communications Privacy Act.

3 Colossus: The Forbin Project (1969)

Old mainframes never die; they network themselves together and take over the world.

4 Ghost in the Machine (1993)

A murderer is transformed into a computer virus in a freak hospital accident and starts killing people by sending electric bolts through their kitchen appliances. First movie to make the case for home SNMP.

5 Johnny Mnemonic (1995)

Keanu Reeves stars as the ultimate remote access device.

6 Jumpin' Jack Flash (1986)

Whoopi Goldberg takes advantage of the corporate WAN to trade E-mail with people around the world. When she learns something she shouldn't in one of those messages, sinister people try to cancel her account — permanently.

7 Jurassic Park (1994)

Forget the dinosaurs. This is a client/server horror story: Unrealistic management expectations force an overworked development team led by a sleep-deprived programmer to launch mission-critical apps without adequate debugging or backing up. The inevitable crash brings about dire results (the enterprise gets shut down, and the users get eaten), but the day is saved by a young outside consultant ("Hey, this is Unix! I know this!").

8 The Lawnmower Man (1992)

Idiot gardener gets into the phone network and makes every telephone in the world ring at once.

9 Sneakers (1992)

The Sundance Kid and Beldar Conehead break into the private networks running our electrical and air traffic control systems before learning that the executive paying them is not really Gandhi.

10 Wargames (1983)

Matthew Broderick nearly causes the ultimate net crash with his 110-baud modem but fixes everything in an on-site visit.

For more about the "Abend top 10 networking movies of all time," point your Web browser at <http://www.nwra.com/netfilms.html>.



CompuServe to offer secure on-line purchases through Internet software

By Tim Greene

CompuServe, Inc. will step up its electronic commerce efforts next week by pulling out its Wallet — CompuServe's name for a new feature of its Internet access software that will let vendors sell directly to on-line users.

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Wallet software will be embedded in Mosaic in a Box, the Internet access software CompuServe acquired this year when it bought Spry, Inc. (NW, March 20, page 35). The new version is due out Aug. 24.

Vendors could post on-line pages promoting products, and, employing a graphical user interface, on-line shoppers could "pull out" their Wallets and pay for purchases.

Wallet users register a Visa, MasterCard or American Express account number and lock it up with a security code, said David Pool, executive vice president of CompuServe's Internet division.

Pool envisions a time when users might stuff their Wallets with "Internet dollars," discount coupons or credit earned by shopping on the Internet or racking up on-line time — like accruing frequent-flier miles.

In September, CompuServe will lower its pricing for users that spend more than five hours per month on-line. The basic service will continue to cost \$9.95 per month, which includes five on-line hours, but extra hours will cost \$2.95 each, a drop from \$4.80. ■

Deregulation

Continued from page 1

calculated and downsized too much in its effort to become more efficient, missing its target of better service with fewer centers. Actual line growth was 500,000 more than projected, and bad weather made the problem worse, the company said.

While US WEST may be an extreme case, other regional Bell operating companies are taking their lumps.

NYNEX Corp. and New York state agreed last week to a performance-based regulatory scheme that requires New York Telephone Co. to refund users' money if the company fails to meet service quality standards.

Staff at the New York Public Service Commission noted last year that service quality had deteriorated from 1993 to 1994 but recommended against any formal action because the new regulatory plan was in the works.

NYNEX says monthly complaints about service went down this year from last year.

Michigan state has no service-quality reporting requirements, but Howard Bradshaw, telecommunications engineer for the Michigan Public Service Commission, said he thought phone service — time to repair and time to install — was on a slide.

"I'm only working on in-

stinct," Bradshaw said, noting a lack of mandatory reporting for big carriers Ameritech Corp. and GTE Corp. "But their install times are starting to go up, and the repair times are getting longer and longer."

Since 1992, RBOCs have cut 131,000 workers to maximize return and profitability in a new regulatory environment, and that is a very conservative estimate, said Robert Rosenberg, president of Insight Research Corp. at Livingston, N.J.

That means more than just a loss of skilled personnel. "The phone companies are weakened by loss of morale and productivity of workers uncertain about their futures," Rosenberg said.

In the absence of an open-and-shut case like US WEST's, users are on their own trying to determine if a problem exists and how to handle it.

But they are not helpless.

The Iowa Telecommunications User Group (ITUG) routinely meets once a year with US WEST and last summer got so many complaints from members about phone service that the group demanded a second meeting, according to Nancy Lakin, ITUG president.

They got their meeting and set about defining their problems: missing appointments for installation and service; new orders incorrectly provisioned;

repairs taking too long; and the inability to get through when calling in for repairs or new service.

They also drew in the Iowa Utilities Board, which threatened action if US WEST did not shape up.

That was last fall. US WEST said then that by spring, the situation should be better, said Randy Hayes, who follows government regulations for ITUG. "A lot of things have improved. I know for sure things haven't gotten worse."

The RBOCs refer to the change they are going through as reengineering — centralizing and doing things more efficiently and with fewer people.

Earlier this summer, when Pacific Bell said it was abandoning its regional approach to service, Dave Dorman, Pacific Bell president, said that would mean better service — and the elimination of 500 jobs.

But that kind of improvement does not always sit well with users.

Jim Yeip, telecommunications manager for car parts manufacturer Federal Mogul, Inc. in Detroit, said all the centralized account teams in the world do not make up for someone local who can actually fix problems.

Senior Editor Joanie Wexler contributed to this story.

AT&T

Continued from page 1

some customers, puts AT&T at odds with rivals, such as Sprint Corp. and LDDS WorldCom (formerly WilTel) that are building NNI links with local carriers.

"The NNI is very basic, reducing service attributes to the mere passing of data packets and some alarm indicators between networks," said Carolyn Tommie, AT&T InterSpan distribution strategy manager. AT&T would not be able to view activity on intra-LATA permanent virtual circuits, though the carrier is able to see and troubleshoot traffic coming into its net over dedicated or dial-up lines.

In addition, NNI would filter out AT&T's special features, such as its closed-loop congestion management scheme, which allocates spare net capacity among active virtual circuits based on the user's committed information rate.

Also, AT&T customers would lose the ability to automatically reroute traffic on either side of the NNI, said Karen Jaffe, manager of the InterSpan frame relay net operations center. "Our testing has shown we would not be able to hit our target network

availability times if we offered NNI service," she said.

"We bought AT&T service because we had certain management and uptime expectations. I wouldn't be willing to give that up to save a few bucks," said Bryan Paxson, manager of communications at Freightliner Corp. in Portland, Ore.

But some customers with lots of intra-region sites have been hoping to aggregate access to a long-distance carrier's frame relay network using local frame relay links. That would save money compared with having to buy separate access lines for each site within the region.

"For users with six or seven sites in one LATA that want to communicate with each other, as well as with sites outside the LATA, the carrier with an attractive NNI offering will have an advantage," said Steven Taylor, president of Distributed Networking Associates, a consulting firm in Greensboro, N.C.

For users with both local and

long-haul needs, AT&T is considering an alternative that could offer less expensive access into the AT&T net, said Steve Hindman, AT&T frame relay product manager. Under this virtual point-of-presence (POP) approach, AT&T would backhaul traffic from a user site to the nearest AT&T frame relay switch

and charge the user as though the POP was local.

Linda Tratnik, manager of network services at AT&T frame relay shop TRW, Inc. in Cleveland, said she can understand AT&T's desire to maintain quality. "But the market will drive them to offer NNI services. If this attitude generally prevailed, we would never have been

able to make a long-distance phone call," she said.

Larry Greenstein, vice chairman of the Frame Relay Forum's technical committee agreed: "If all the [long-distance companies] did this, the [local exchange carriers] would probably file a lawsuit with the Depart-

ment of Justice because they would be prevented from connecting to each other."

Competing philosophies

The NNI philosophies of AT&T's competitors differ widely. "We look at NNI as just another option we can offer our users," said Emily Hansen, LDDS WorldCom frame relay product manager. LDDS WorldCom has NNI partnerships with Bell Atlantic Corp., BellSouth Corp., NYNEX Corp., Pacific Bell, Southern New England Telephone Co. and US WEST, Inc.

Brad Hokamp, director of Sprint's advanced data services, said his company has many insurance and banking customers looking to save money through local frame relay access. Sprint is pursuing NNI arrangements with several local carriers.

MCI Communications Corp. has not made any NNI connections yet but plans technology trials in the fourth quarter, with a slightly different tack.

It will offer private NNIs — T-1 links between nets that a user buys exclusively — rather than public NNIs that the carrier pays for and are shared among many users. ■

WHAT YOU GAIN, WHAT YOU LOSE

Thumbs-up:

- ▲ Cost savings
- ▲ Efficiency
- ▲ Options

Thumbs-down:

- ▼ Inconsistent features
- ▼ Multiple carriers
- ▼ Delays

Back to Reality

Internet naming needs a face-lift to meet real-world needs

A billboard caught my eye as I drove through downtown Atlanta last week. The simple design sported a familiar bottle on its side, with these words superimposed on the image: "World's most popular drink."

That was it. Of course, the shape obviously was a Coke bottle, so the advertisement made perfect sense, not only in Atlanta — a city whose mega-millionaires hoard their cache of Coca-Cola Co. stock — but also around the world.

A good name is a power asset to any business. Awareness leads to recognition and buying preference.

Coca-Cola has even mastered shape recognition, which is a lesson to the networking industry. Imagine a billboard displaying a gray metal box with the text: "World's most popular ATM switch."

Noway.

Name disputes

People selling flavored sugar water and other life-essential items might be unfamiliar with Asynchronous Transfer Mode, but they are convinced that the Internet is the marketing opportunity of a lifetime.

Corporate Internet registrations are skyrocketing. According to Herndon, Va.-based Network Solutions, Inc., which registers Internet domain names in cooperation with the National Science Foundation, domain registration requests average 600 per day.

A domain name is an umbrella classification that allows an organization to then set up dozens, hundreds or thousands of subnetworks linked to the Internet. Domain names hide complex numbers that route IP packets. Typing jsmith@bigcorp.com thus replaces jsmith@177.109.84.3.

Domain names help keep order on the Internet; no two names are alike. And that's the rub. Internet Johnny-come-lately corporations are discovering that their trademarked and servicemarked names have been used for years as domain names by some smaller companies or even 'Net-savvy individuals.

And the big guys don't like this one bit.

The old domain registration policy was simple: first come, first served. But Network Solutions decided to head off a raft of potential lawsuits and just issued a new policy. A domain name holder must give up its name if a new registrant — and legal trademark owner — wants the old name.

The Internet, of course, lit up last week with hundreds of messages. Some of the gurus were mad because they had not been consulted in traditional request-for-comment style. Consensus was yesterday's rule; the new policy seems more like declaration by fiat.

The new guys don't care. They figure that legal rights are just as valid in cyberspace as in the real world. A void of related judicial rulings and legislation, however, positions this issue as the Rubicon for digital commerce.

If the Internet is as lawless as some believe, it's inap-

propriate for business. Just a toy.

Cybermarketing will depend on name recognition, and today's naming approach doesn't meet that goal.

For example, you might think the domain name abc.com belongs to the American Broadcasting Co. It doesn't; it belongs to ABC Design. And while abc-news.com belongs to the ABC Radio Network, but abctv.com is the name for ABC Televideo Consultant. Go figure.



David J. Buerger

Naming is crazier when a common word takes on new meaning, such as the word "apple." Does it refer to Apple Computer, Inc., Apple Records, Inc. or some apple grower?

Part of the problem stems from an anachronistic naming system. When the Domain Name System was created in 1984, the U.S.-centric team decided on eight categories: COM for commercial organizations, EDU for educational,

GOV for government, MIL for military, NET for networking organizations, ORG for other organizations, INT for international and NATO for North Atlantic Treaty Organization.

NATO objected to being classified as MIL and, given its antics in Bosnia, has proved to the world that it is not a military organization.

A newer program of using top-level domain names based on one's country was established by the International Standards Organization. Few use this plan, which can lead to strange twists.

In the U.K., for instance, an E-mail address would not be queen@palace.uk; it's queen@uk.palace. That's because they drive on the wrong side of the road.

Traditional domain names make little sense in the age of international corporations and transnational commerce. This is where right-brained networking geeks should simplify life and toss out the COM category.

Why not break the logjam and organize commercial Internet domain names based on what a company does?

Television networks, for instance, would thus get the TV domain — abc.tv, cbs.tv, nbc.tv, fox.tv, cnn.tv and so forth.

Companies with multiple product lines might go for different domain names. Using 3Com Corp. as an example, domain names would include 3com.routers, 3com.hubs and 3com.adapters.

Too complicated? Today, people use telephone directories and the information service to find phone numbers. I'm sure a technological solution will evolve to simplify looking up E-mail and host addresses.

By the way, I used Coke as a story lead not because they paid me to, but because I like it. With peanuts, of course.

Buerger is an Atlanta-based writer and industry consultant. He can be reached at dbuerger@pipeline.com.

A B E N D

abend (n) 1: abnormal end to a computer process 2: the column that spares no expense to bring you the insights of Internet users and other high-tech wits

Computer model names we'll never see

(comp.sys.mac.misc)

The DEC Dataloss 300SE

The Compaq Lockup 90

The Gateway HeavyWeight LC Ultralite Notebook PC

The IBM HAL 9000

Il Olivetti Obsolete DX

The Dell Why Not Just Admit You're Blowing \$3,700 on this Thing Just to Play "Navy Fighters" in Hi-Res Pentium LXI

Question of the day

(rec.humor)

Q. How do you know that the movie *The Net* is a fictional flick?

A. Everyone is using a Macintosh.

Is the earth's crust comprised of eight main elements?

(rec.oracle.usenet)

And in response, thus spake the Oracle:

Yes, it's true. Here are the elements and their concentrations:

1. McDonald's wrappers (61.42%)
 2. Lost socks (33.84%)
 3. Old *TV Guide* issues (1.05%)
 4. ATM receipts (0.96%)
 5. Atari 2600 Combat cartridges (0.31%)
 6. Coffee filters (0.27%)
 7. Golf tees (0.25%)
 8. Shopping carts (0.18%)
- Everything else (1.72%)

News you probably missed

(alt.folklore.urban)

Newspapers in Chapel Hill and Raleigh, N.C., during the past few days (the last week of July), have followed the story of a 1,000-pound hippopotamus sculpture that was stolen from its home near Chapel Hill and, subsequently, sighted on flatbed trucks on highways in the vicinity.

Late last week, a newspaper received a photo of a masked man in the woods, holding a jackhammer to the hippo's concrete head, captioned "Back off, or the hippo buys it!"

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Issue Date: August 7
Closing Date: July 26
Bonus Distribution: GroupWare '95, San Jose
Reader Service
Special Focus — LANWorld
Features — Buyer's Guide: Network management applications — We'll examine a series of software products that integrate all the information collected by common network management platforms into a single view of the network for end users. These packages collect data retrieved by element managers and by the management platform from network devices. This information is processed and displayed to the end user in a uniform fashion.
Comparative review: Fax server hardware.

Issue Date: August 14
Closing Date: August 2

Special Focus — Virtual LANs: What is a virtual LAN? What's going on with the standards process? Which vendors are leading the way in VLAN technology and what's different about it? Does any vendor explain how to populate virtual LANs? This special focus will address these questions as well as provide a user story to show whether or not VLANs are making things easier or more difficult and how to deal with management issues.

Vendor profile: Cabletron Systems.

Comparative review: TBA.

Issue Date: August 21
Closing Date: August 9

Special Focus — WANs/Internetworking: This will be a collection of stories that will focus on the strategies of AT&T, MCI and Sprint as well as where and how users can actually buy any local services other than dedicated bypass right now.

Comparative review: Windows 95 and OS/2 Warp connect as network clients.

Issue Date: August 28
Closing Date: August 16
Collaboration Close: July 28
Harvey Ad Study

Features — Buyer's Guide: Routers. We'll take a close look at the latest developments in high-end router products. Users will get a feel for what new features vendors have added to their products and what new strategies vendors have taken to keep routers positioned as a key element in the enterprise network. We'll also update users on any developments in the low-end, branch office router market.

Comparative review: Network software uninstallers.

Issue Date: Sept. 4
Closing Date: August 23
Comparative review: Token ring switches.
Special Focus: Local Area Networks. An examination of the various server management tools on the market and how they stack up against each other.

Issue Date: Sept. 11
Closing Date: August 30
Bonus Distribution: Networks Expo, Dallas
Reader Service

SPECIAL SUPPLEMENT
"Capitalizing on the Internet"

Close Date: August 11
Bonus Distribution: Networks Expo, Dallas
NetWorld + Interop, Atlanta
Reader Service

The State of Online. The state of the commercial development of the Internet. Quantifies, qualifies, and forecasts business opportunities on the Internet. Two sidebars will profile the entry costs and returns for a couple of the early vendors.

Marketing on the Net. An opinion piece on marketing on the Internet and what can, and cannot, be done with marketing and public relations.

Tools for Setting up Shop. A review of server software for doing business on the Internet. To include NetScape's Commerce Server, O'Reilly's WebSite, etc.

Virtual Finances. An analysis of e-cash, secure transactions, microtransactions, and credit card issues related to the Internet.

A Notary for the Net. A review of Surety Corporation's notary public system.

Searching the Web. There has been an explosion of commercial Web sites but how do you find what's out there and how do you get your site known? There will be a sidebar on Web search tools.

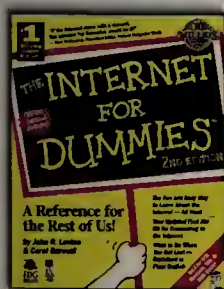
Special Section: NetWare — A collection of three to four articles that will update readers on critical developments in Novell, Inc.'s NetWare product line.

Single product review: A review of the network management services of leading network operating systems such as NetWare, Windows NT Advanced Server and VINES.

Issue Date: Sept. 18
Closing Date: Sept. 6
Bonus Distribution:
Object World Expo, San Francisco
TCA, San Diego
Buyer's Guide: Wireless data communications services — This Buyer's Guide will assist mobile users in looking for the service provider that will best be able to provide a packet radio or other form of wireless connection into the enterprise network.
Single product review: Novell NetWare 4.11.

Issue Date: Sept. 25
Closing Date: Sept. 13
Bonus Distribution:
NetWorld+Interop, Atlanta
Unix Expo, New York
Annual Salary Survey: We'll poll managers in end user organizations to uncover developing trends in setting salaries for several different network positions. This survey will help managers determine salary levels for their employees.
Single product review: Microsoft Windows NT Server 3.51.

* Product tests/reviews subject to change.



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Bright Ideas




Joanne Wittren
Senior Marketing Services Manager

Measuring Advertising and Promotion Effectiveness at Trade Shows

Justifying advertising and promotion programs at trade shows has become increasingly more difficult due to the number of industry trade shows that have emerged over the past few years. As a result, it is important to put a consistent measurement program in place to monitor the effectiveness of advertising and promotion at any given show.

A comprehensive measurement program should:

- **Measure the value of show attendees as potential qualified buyers.** Show management should provide you with adequate attendee information for you to decide whether or not this is a key show for you. It is important to define the number and quality of buyers at each show to maximize your investment. Your objective should be to reach key buyers, not all show attendees.
- **Set realistic objectives to measure the performance of your advertising and promotions at trade shows.** To increase product awareness is not a specific objective. To make 20% of potential buyers aware of your product is a more specific objective.
- **Benchmark the results against major competitors.** Comparison against competitors is a way of learning if your advertising and promotion was effective. Stay in tune with your competitors' trade show advertising and promotion. Conduct an awareness study at or after the show. If tracked over time, this information can help in selecting the best shows at which to advertise and promote.

A comprehensive measurement program can be easy to implement and should be an essential component of your trade show program. With today's ever-changing market dynamics, marketing intelligence is vital to the development of a successful trade show advertising and promotion plan.

Contact your local *Network World* sales representative to discuss special Visitel
NetWorld+Interop opportunities that are sure to increase your trade show promotion effectiveness!

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NetworkWorld

Marketing & Advertising Quarterly Report

Coming September 25

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Colin B. Ungaro
Colin B. Ungaro
Publisher

Network World Breaks New Ground with Network World Fusion™

Network World is breaking new ground in Web publishing with Network World Fusion™, the most comprehensive and educational Web advertising environment on the I-Way. Network World Fusion™ serves the needs of Network IS decision makers responsible for buying your network products and service solutions.

Based on the expressed needs of our readers, Network World Fusion™ will be a compelling extension — not an electronic imitation — of Network World. While our readers

are unwilling to give up the easy readability of the print publication for weekly network product and service information, they are eager to access the Internet's World Wide Web to tap into exciting new resources that extend the editorial and advertising content of Network World.

Network World Fusion™ will complement and augment the publication by encouraging communication among peers, facilitating interaction between companies and customers and delivering award-winning content. Network World Fusion™ will also filter and organize the overwhelming amount of information available on the Web to save our readers time and direct them to relevant network-related resources, reinforcing our vital role as a key information provider.

Directory icons within Network World's weekly editorial will guide users online for information that supplements what is found within the publication, creating a total fusion between the print product and electronic media. The end result? An online strategy that meets our readers' needs by providing a total information package that actively enhances our mission to empower Network IS professionals by providing them with timely and valuable resources — a strategy that remains unchallenged by our competitors.

Network World Fusion™ advertisers will greatly benefit from the value-added environment provided by a service that is tightly fused with the print product. And our HyperLeads™ will offer you the most detailed, timely information on your most interested prospects. HyperLeads™ capture information such as network platforms installed and planned for purchase, mainframes installed and planned by vendor and even the value of networking equipment and services your prospects are involved in purchasing. Because we register each and every one of our Web site visitors, advertisers are privy to the information they need to prioritize their leads and increase their sales!

Special Offer!

Network World is making you a very special offer through our Network World Fusion™ Charter Advertising Program. When you place an ad in our "Capitalizing on the Internet" supplement in Network World's September 11 issue, you'll receive 3 months of electronic advertising on Network World Fusion™ — October, November and December 1995 — absolutely FREE!

For more information on electronic advertising opportunities with Network World

Fusion™, call your local sales representative or Virginia Lehr, Director of Marketing, at (508) 875-6400.



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vantage

Reaching the Volume Buyers

Analyzing and Understanding Syndicated Research Studies.

The industry recently kicked-off the syndicated research season with the release of the Simmons CompPro III study on May 30, 1995. This study looks at computer professionals involved in the buying process and offers market information in terms of product purchase involvement and readership habits.

And Simmons

CompPro III proved, yet again, that Network World readers spend more. Among all networking and LAN publications, Network World ranks #1 on average for total spending, network spending, PC spending and number of PCs acquired in the last 12 months. Our readers not only outspent readers of other networking and LAN

publications — they also spent more on their networks in the last 12 months than readers of any of the other 47 publications and newspapers studied! And isn't that what it's all about — reaching the professionals who spend the most money on the products and services you're offering?

Simmons

@INTELLIQUEST

With the impending release of

the 1995 IntelliQuest Computer Industry Media Study — the largest and most comprehensive syndicated study ever done in the high tech market — it's important to keep in mind some of the key factors to look at when analyzing the research in your quest for volume buyers.

The most important tool you can continued inside: Volume Buyers ►

Understanding Current Network Technology

Network World Technical Seminars will introduce its new Fundamentals of Networking and Data Communications seminar this fall. The seminar will kick-off Network World's Foundation Series education programs which are designed to deliver information on the technologies and strategies that form the foundation for all other network and IT knowledge.

Directed and presented by Ray Horak, an internationally acclaimed network consultant, author and lecturer, Fundamentals of Networking and Data Communications is a dynamic, fast-paced, plain-English, common-sense and thoroughly understandable explanation of current and developing communications systems and networks. This seminar is perfect for groups involved in the marketing, sales and promotion of information technology products and services.

NetworkWorld TECHNICAL SEMINARS

Fundamentals of Networking and Data Communications Tour

- | | |
|----------------------|---------------------------------------|
| October 16-17 | New York, NY- New York Vista |
| October 19-20 | Wash., DC- Stouffer Renaissance Hotel |
| October 23-24 | Chicago, IL- Hyatt Regency O'Hare |
| Feb 12-13 | Irvine, CA- TBA |
| Feb 15-16 | Dallas, TX- TBA |
| March 4-5 | Atlanta, GA- TBA |
| March 7-8 | Philadelphia, PA- TBA |
| April 15-16 | Boston, MA- TBA |
| April 18-19 | Minneapolis, MN- TBA |
| April 22-23 | San Francisco, CA- TBA |



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vantage

Volume Buyers

continued from cover ►

possess is an understanding of the difference between the coverage and composition numbers reported in the study.

Both are important despite the frequent misconception that cover-

COVERAGE

Vs.

COMPOSITION

Coverage is the percentage of the universe. For example: 50% of those survey respondents involved in the purchase of widgets read publication X.	Composition is a percentage of a publication's audience. For example: 90% of publication X's readers are involved in the purchase of widgets.
Coverage is used to evaluate the reach of a publication.	Composition determines the publication's concentration.

age is all that matters. Some points to keep in mind in respect to composition: it is an important gauge of a publication's editorial vitality in terms of reader value and reader loyalty; an advertiser is purchasing a publication, not the study universe so it is important that a publication deliver a high concentration of the advertiser's target.

In addition to the traditional coverage and composition numbers, the IntelliQuest Computer Industry Media Study also provides volumetric data which is extremely valuable information because not only are you able to determine if a publication's readers are involved in purchasing particular products, but also how many they purchase and how much they plan to spend on those products. This is a key indication of whether or not a publication delivers volume buyers.

The amount of information reported in the IntelliQuest study might seem overwhelming at first. But focusing on your target market, evaluating both coverage and composition of the publications studied and reviewing the volumetric data provided can help you find the most efficient way to reach the professionals who spend the most on your products and services.

If you'd like to review the results from the 1995 IntelliQuest CIMS study, please contact your local sales representative at (800) 622-1108.



Douglas Barney, News Editor Douglas Barney joins *Network World* as the newsweekly's News Editor. A long-time IDG veteran, Barney started his career at IDG in 1984 as an associate editor for *Micromarket World*. In 1986, he moved to *Computerworld* as senior editor of the microcomputer section. In 1989, he moved to *Amiga World* where he served as editor. Most recently, Barney was a senior editor at *InfoWorld*.

Bill Bernardi, Product Specialist/Professional Development Dept. Bill Bernardi joins *Network World* as a Product Specialist handling logistics for our classroom seminar series as well as in-bound sales.

Ed Garabedian, System Specialist/Online Services *Network World* welcomes Ed Garabedian to our IS group. Ed will spearhead our efforts in the hardware and software development of the servers supporting *Network World* Fusion™.

Sherwin Horowitz, Midwest District Manager Sherwin brings with him over 13 years in the publishing market having held various positions at *PC Week*, *Digital Review* and *Computer Shopper/PC Sources*. Sherwin joins us from his recent post as Midwestern Sales Manager for *Advanced Systems Magazine*.

Tina Pescaro, Operations Assistant/Professional Development Dept. Tina Pescaro comes on board as *Network World*'s Professional Development Department's Operations Assistant. In her new role Tina will work on processing and fulfillment of *Network World*'s growing product line.

Ann Roskey, Product Manager/Online Services As our new Product Manager/Online Services, Ann will be instrumental in developing, coordinating and marketing *Network World*'s Fusion™.

Annmarie Timmins, Staff Writer Annmarie Timmins joins *Network World*'s editorial department as a Staff Writer for our Client/Server Applications section. She comes to us from *RISC World* where she was Managing Editor for the monthly magazine.

Get the Facts.

Who's buying storage and backup products?

Survey says *Network World* readers! Storage and backup manage-

ment is among the top two functions when it comes to managing the enterprise network and Network IS professionals have emerged as the central point of control. So, it's no surprise that a recent study of 200 *Network World* subscribers reveals that our readers are involved in every aspect of the decision-making process for the purchase of storage and backup products:

Determine need	81%
Decide specifications	76%
Evaluate products/vendors	82%
Recommend/select products/vendors	89%
Approve the purchase	35%

And they aren't skimping on their spending either! In the next 12 months, respondents will spend \$411,800 on average on network storage and backup products.

A combination of cost savings, protection of valuable corporate data that is spread across multiple systems and a desire to streamline processes and procedures is leading many companies to take a second look at their network storage and backup:

Direction of Company's Network Storage and Backup

Centralize network storage and backup for entire company	38%
Standardize on network storage and backup products for use across the corp.	34%
Establish corporate guidelines or strategies for network storage and backup	31%

Network World readers are responsible for network storage

and backup for a wide array of systems, which include:

Servers	73%
PCs	67%
Workstations	44%
Entire network	35%
Minis	30%
Mainframes	21%

Respondents' average network storage requirement is 102 gigabytes, which is expected to increase to 141 gigabytes over the next 12 months. And they currently use and plan to purchase many types of storage media to handle their increasing network storage requirements:

	Currently Use	Plan to Purchase
Tape backup drives	94%	59%
Rewritable optical disk drives	15%	24%
Drive array systems (RAID)	19%	17%
Internal hard disk drives	26%	16%
WORM optical drives	12%	13%
Floppy disk drives	20%	10%

Their shopping lists include a variety of different vendors.

Vendor's Storage and Backup Products Likely to be Considered for Purchase in the next 12 Months (partial list)

Arcada Software, Inc.
Cheyenne Software, Inc.
Colorado Memory Systems
Conner Peripherals, Inc.
Digital Equipment Corp.
Hewlett-Packard
IBM

So network storage and backup vendors looking to increase their sales should look no further. *Network World* delivers the customers you've been searching for!

For a copy of the complete storage and backup presentation, call Kristin Wattu at (508) 820-7420.